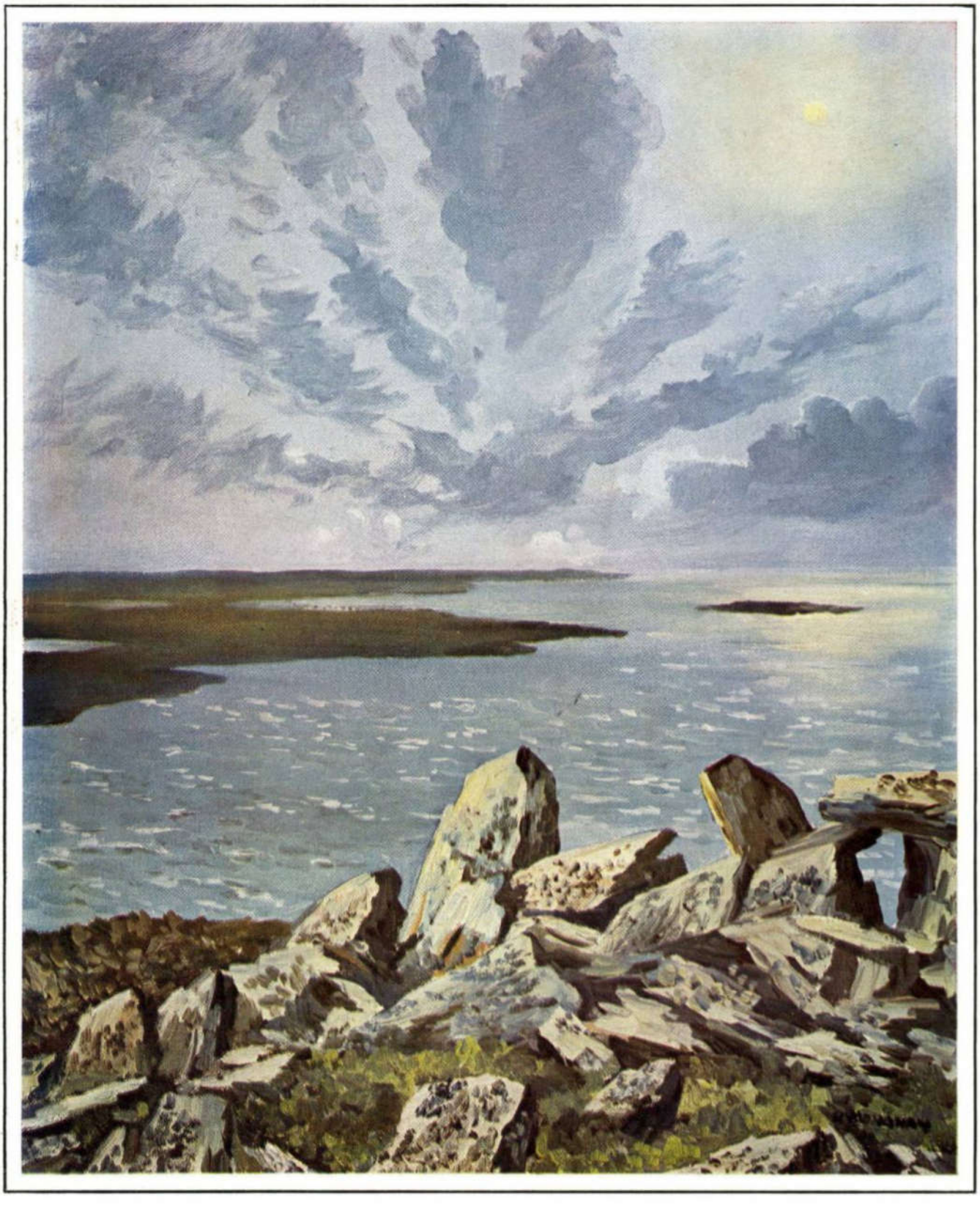
The Beaver

SPRING 1965



In Memory of The Rt. Hon. Sir Winston Churchill K.G., O.M., C.H.

Members of the Hudson's Bay Company, together with all the people of the free world, deeply mourn the passing of this most valiant and eloquent of statesmen who honoured the Company, in 1956, by his acceptance of the appointment as GRAND SEIGNEUR of the Company of Adventurers of England Trading into Hudson's Bay.

The Beaver

MAGAZINE OF THE NORTH

Editor: Malvina Bolus

SPRING 1965
OUTFIT 295
$2 A YEAR

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Painting by Hugh Monahan

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The picture on the opposite page, from the painting by Bernard Hailstone in the Maison Dieu, Dover, shows the Grand Seigneur in the uniform of Lord Warden of the Cinque Ports and is reproduced by courtesy of the Registrar of the Cinque Ports.

PUBLISHED QUARTERLY BY

WINNIPEG 1, CANADA

Hudson's Bay Company.
INCORPORATED 2ND MAY 1670

HUDSON'S BAY HOUSE

Published by The Governor and Company of Adventurers of England Trading into Hudson's Bay, known as the Hudson's Bay Company. The interests of THE BEAVER cover the territory with which the Company has been or is now associated. Annual subscription, $2; three years for $5; single copy, 50 cents. While every care will be taken of manuscripts and illustrations submitted, no liability will be assumed for loss. Authorized as second class mail, Post Office Department, Ottawa, and for payment of postage in cash. Contents copyright. Printed in Canada.
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The fragments of Eskimo prehistory

BY WILLIAM E. TAYLOR, JR.
Chief, Archaeology Division,
National Museum of Canada

The first two artifacts above, part of a large chipped quartzite blade and a chipped flint point, belong to the Pre-Dorset period, from Buchanan site; the last two are Thule period, part of a ground slate blade for a harpoon head, and a harpoon head from Pembroke site.

A READER OF ARCTIC HISTORY and ethnology might conclude that the friendly Arctic was sometimes deadly. Yet, turning to archaeology, the reader learns that man has survived in Arctic America for some 5,000 years and that the Eskimo's ancestors prevailed over a vast expanse from easternmost Siberia to the Strait of Belle Isle and to Denmark Strait between Greenland and Iceland.

Although many pieces are yet to be found for the complex jig-saw puzzle of Eskimo prehistory, archaeologists can outline the general nature of the picture by fitting in place its available fragments. This reveals the fifty centuries of Canadian Eskimo prehistory readily dividing into four major periods or stages. First there was the Pre-Dorset stage of nomadic hunters who drifted across the deglaciated Canadian Arctic from Alaska. Archaeologists, somewhat given to polysyllabic locutions, refer to the Alaskan parent of Canadian Pre-Dorset as the Cape Denbigh Flint Complex of the Arctic Small Tool tradition.

The Denbigh Flint Complex, best known from the Alaskan side of Bering Strait and from the Brooks range of northern Alaska, contains a long list of chipped chert and obsidian tools such as microblades, end scrapers, side scrapers, knife blades, and the most delicately fashioned inset side blades and points for hafting in lances, spears, arrows, and harpoon heads. Denbigh Complex sites also include a high percentage of burins, a distinctive and specialized chipped stone tool used for slicing, and perforating such hard materials as bone, caribou antler, and walrus ivory. The Denbigh Complex people were seasonal nomads many of whom summered on the coast hunting seal probably with the aid of boats; others lived in the interior where they stressed caribou hunting. Various kinds of evidence, including radiocarbon dating, palaeoclimatology, and geology, suggest that the Denbigh Complex or something very closely akin to it, existed in northern and western Alaska at about 3000 B.C., and probably it persisted there from about 3500 B.C. to 2500 B.C. Although some Denbigh traits recall still earlier Indian cultures far to the south in the interior of North America, many more reflect a relationship, perhaps old and indirect, with recently discovered Palaeo-

Photographs by the author, courtesy National Museum

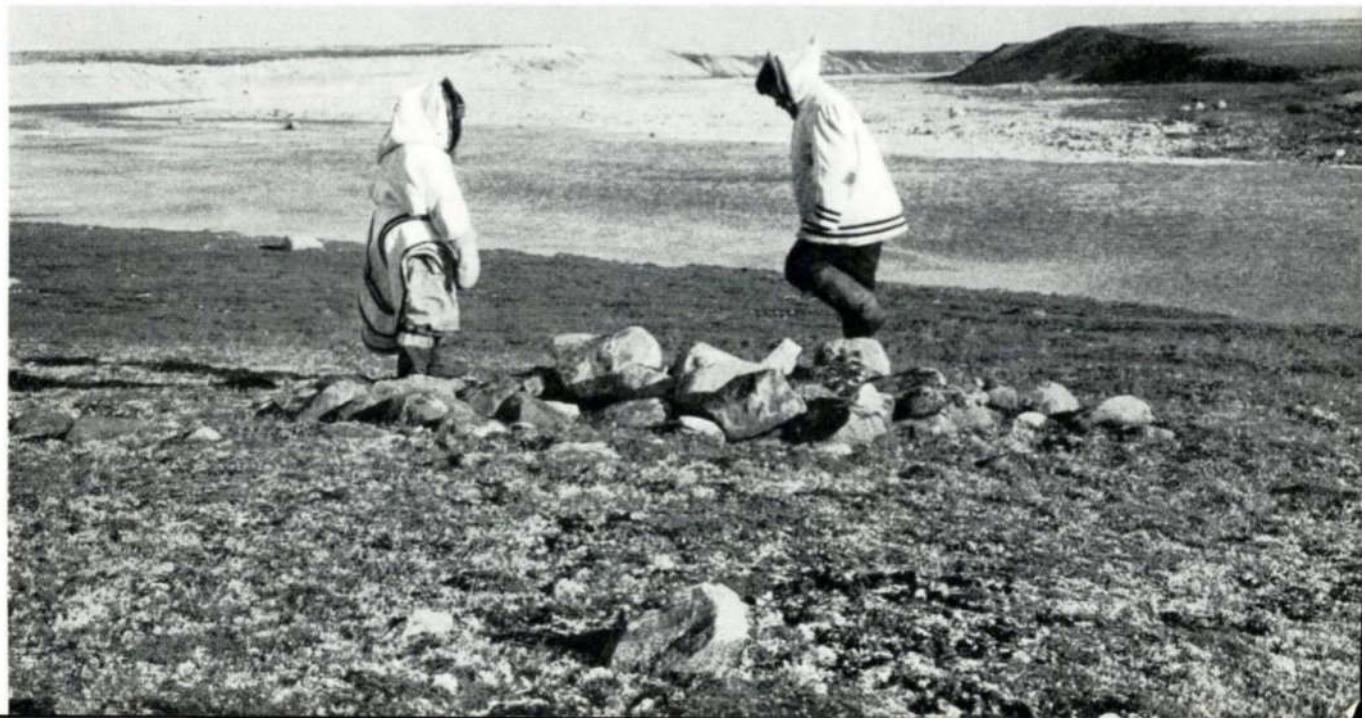
lithic and Mesolithic cultures of the Far East and with the early "Neolithic" of Siberia. Because no human skeletons and of course no trace of the language of the Denbigh hunters have been found, one cannot readily conclude that they were Eskimos. They did, however, have an Eskimo way of life, that is, a distinctive culture and economy adapted to treeless country, and further some of their objects persist in slightly altered form in much later, clearly Eskimo, sites. As J. L. Giddings, the discoverer of Denbigh recently wrote, "Regardless of how we designate them, these Denbigh people appear to be in a direct line of cultural continuity with Eskimos."[1] Also, interesting studies in the relatively new and exciting field of lexico-statistical dating suggest the Eskimo and Aleutian languages may, as a unified language family, be at least 5000 years old.

Faced with the many, sometimes startling, developments in Eskimo archaeology over the past ten years, arctic prehistorians are sometimes struck mute by caution or made unintelligible to the reader because of confusion and indecision. Nevertheless, it seems likely that the earliest "proto-Eskimo" of northern America derived their culture from Siberia and originally migrated from there. Perhaps the ancestors of Denbigh people drifted eastward along the southern edge of the former Bering Straits land bridge from what is now the southeastern coast of Siberia. If that were the case, the camps of those wanderers, now over 8000 years old, are long since submerged under the cold waters of the Bering Sea.

Whatever the origin of Denbigh people, they and their descendants were well equipped to survive in the tundra world. The success of their arctic adaptation appears clearly in the archaeological record of their migrations for the descendants, harvesting the game on which their lives depended, spread eastward across northern Alaska, the central Canadian Arctic and the eastern arctic islands to Greenland. Eventually they reached at least as far as northeastern and southwestern Greenland, Ungava peninsula in northern Quebec, and down through the Barren Lands and the west coast of Hudson Bay to Churchill, Manitoba. Carbon 14 dating suggests they reached northeastern Greenland by 2000 B.C. In the Canadian Arctic, this eastern development from the Denbigh threshold is called Pre-Dorset culture and it persisted over a large area until about 800 B.C. In southwestern Greenland Danish archaeologists have found a late variant of Pre-Dorset, called Sarqaq, which lasted there until about 500 B.C.

When lumping Denbigh, Pre-Dorset, Sarqaq and a few other regional variants all together, archaeologists call the lump the Arctic Small Tool tradition for it is spread all across the tundra top of the continent, is characterized throughout by very small, carefully and delicately chipped stone tools, and lasted perhaps for 3000 years. With comforting consistency these sites produce the burins, microblades, scrapers, knife and weapon points, and side blades by which the prehistorian recognizes the tradition. Some of the Canadian sites include the small subrectangular depressions left by the semi-subterranean winter houses of Pre-Dorset people, or the ring of boulders that secured the bases of their skin tents in summer camps. Occasionally charred and split stone cobbles mark the old hearths where they burnt greasy bones and scrub vegetation. The nature and the location of Pre-Dorset sites indicate that these people lived in small, widely scattered, nomadic bands, moving season-

Examining an old stone food cache on Mansel Island near the western end of Hudson Strait.



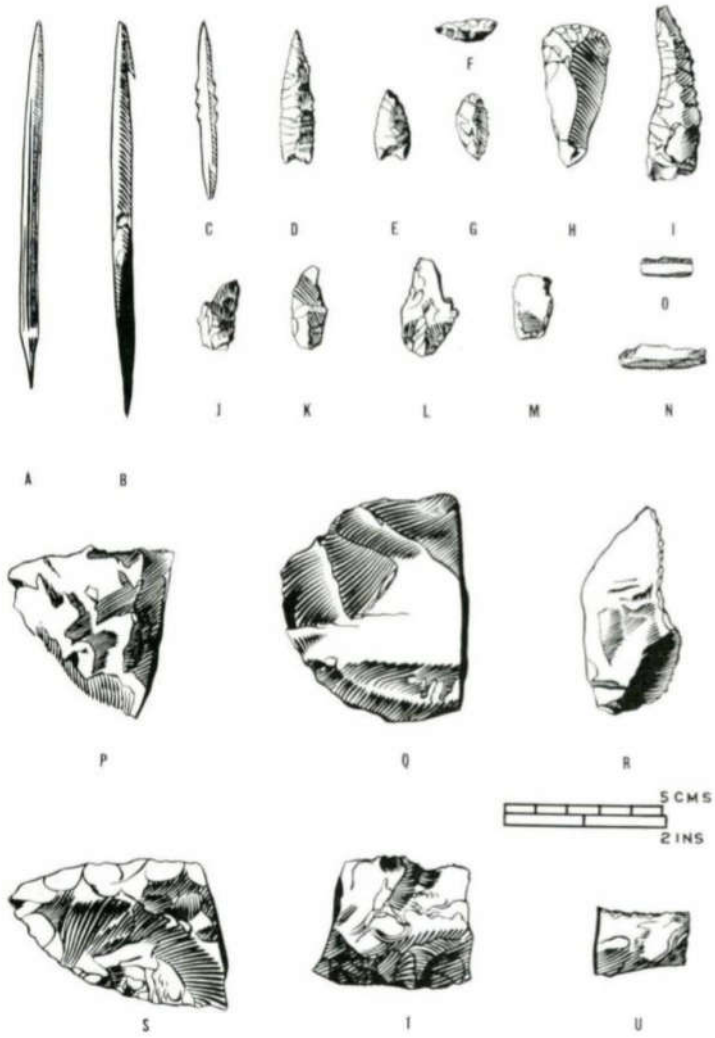
Remnant of tent ring and hearth of Pre-Dorset period on an old gravel beach about a mile from the sea at Mansel Island.

ally to exploit various game resources. They used toggling harpoons, spears, lances, and the bow and arrow in hunting caribou and seal. Very likely fish and summer birds appeared on their menu and probably wide-eyed children heard yarns of encounters with bears, wolves, muskoxen and walrus.

The second period in Canadian Eskimo prehistory is that of the Dorset culture. It derives its name from Cape Dorset on Baffin Island for it was from the H B C post there that the first recognized collection of Dorset period material was sent to Ottawa. Collected by Eskimos, it was received some forty years ago by Diamond Jenness in the National Museum of Canada. Although Eskimo archaeology had barely begun and despite the fact that the collection was completely mixed up, Jenness, in a brilliant feat of archaeological detective work, managed to isolate the diagnostic specimens and to prepare the original definition of the culture (Jenness 1925). The abundant work of the past forty years has confirmed and amplified Jenness's then revolutionary interpretations.

Like many others so long silent, the Dorset people had scant effect on the clattering, embattled course of man's history. Nevertheless they occupied a large part of the earth's surface and did so for an impressive number of centuries. The Dorset culture existed approximately from 800 B.C. to A.D. 1300 and spread from Bernard Harbour and Melville Island in the west to eastern Greenland and the northwest part of Newfoundland Island. In fact, the Newfoundland sites are some 2400 miles and 2300 miles respectively from those in northeast Greenland and those at Bernard Harbour in the Canadian Western Arctic—roughly the same as the mileage from Montreal to Los Angeles or Winnipeg to Tegucigalpa in Honduras. Within the Dorset area, sites seem most abundant in the Hudson Strait-Foxe Basin region. Although Dorset material occurs down the east side of Hudson Bay to the Belcher Islands, it has not been found on the bay's west coast; nor does it seem to occur in the Barren Lands interior west of the bay. So far the only inland find of Dorset sites have been at Payne Lake near the centre of Ungava peninsula.

The origin of Dorset culture has long been a question of hot scholarly debate despite the cold silence of the subject matter. Before the Pre-Dorset period was discovered scarcely a dozen years ago, some archaeologists claimed Dorset derived by migration from Alaska while others argued it was basically an Indian way of life that was carried from the Great Lakes-St. Lawrence Valley area. A volley of recent reports on very early Dorset sites and on Pre-Dorset sites along with new results of radiocarbon dating has led to general agreement that Dorset

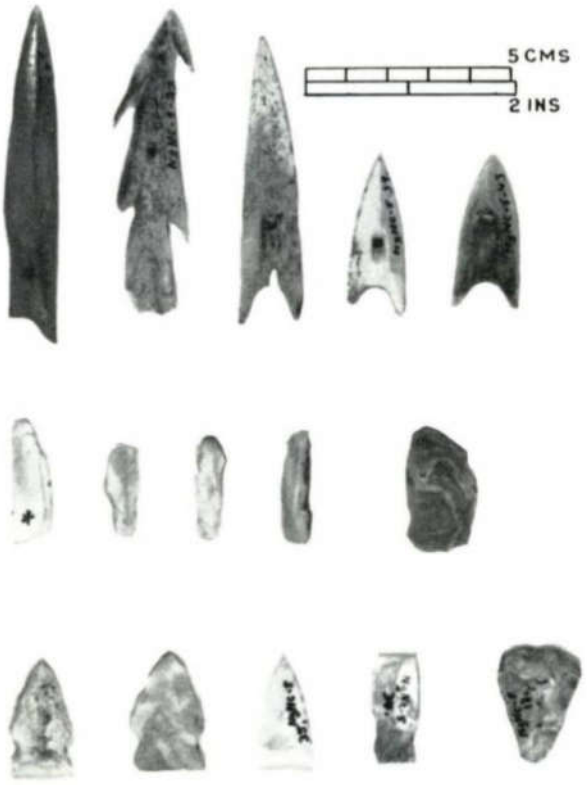


Pre-Dorset component from the Buchanan site, found in 1963 (see p. 15). A-C arrow heads, possibly antler; D, E triangular end blades, chert; F, G side blades, chert; H end scraper, chert; I concave side scraper, chert; J-M burins, chert; N microblade, chert; O microblade, sidenotched, chert; P, Q biface blade fragments, quartzite; R side scraper, quartzite; S-U biface blade fragments, quartzite.

Pair of swans carved in ivory, of the Dorset culture, found on Mansel Island, shown double actual size of carving.

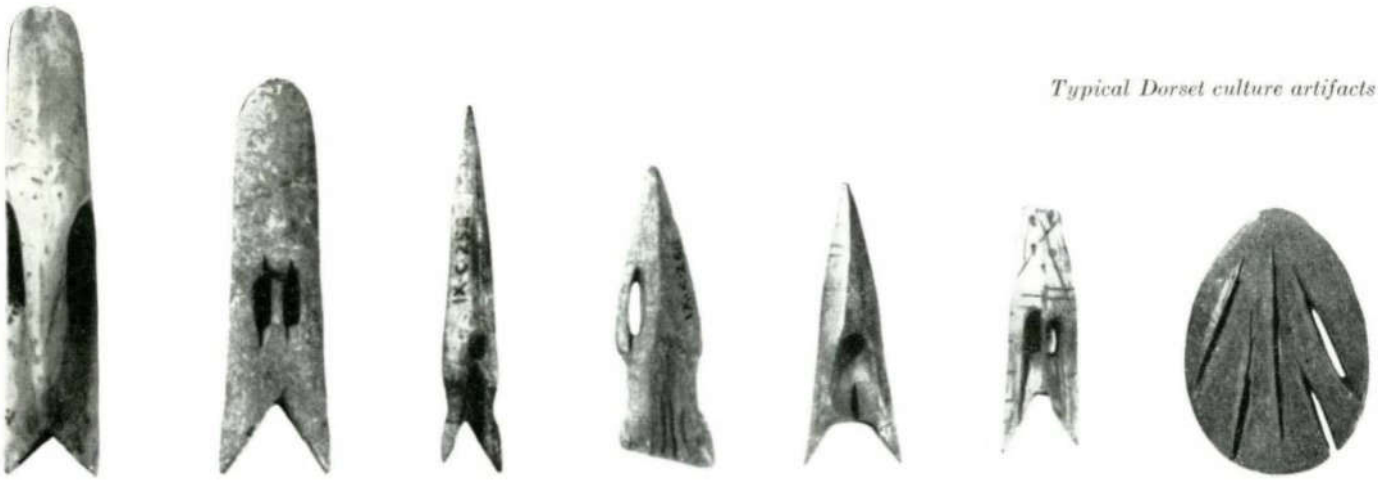
culture developed first within the Canadian Eastern Arctic from the Pre-Dorset culture, for many culture traits are shared by the two and other Dorset tool types are clearly evolved from Pre-Dorset prototypes. Further the Pre-Dorset and Dorset peoples lived very similar kinds of lives with the same adaptation, economy and settlement patterns. Nevertheless a few Dorset traits, lacking Pre-Dorset antecedents, may have been acquired by cultural diffusion from the western sub-Arctic and from early Indian groups in southeastern Canada. The National Museum of Canada's 1963 arctic field survey re-opens the possibility that the change from Pre-Dorset to Dorset involved the spread of some ideas eastward from Alaska because that survey extended the known range of Dorset occupations some 450 miles westward to Bernard Harbour where a rather early Dorset culture site was examined.

Like their predecessors, Dorset people lived in small seasonally-nomadic bands with little camps of skin tents in summer, sheltering in winter in small clusters of partly-underground pit houses. Some of these winter houses seem to have had skin roofs. Dorset man may have used, indeed might have invented, the snow-house. They hunted seal, bearded seal, walrus, and caribou; they fished extensively using stone traps and barbed spears; spears were also used in bird-hunting. Heavy spears, lances, and toggling harpoons were used against the larger animals. Since there is very little evidence of domesticated dogs in this culture, Dorset people may have man-hauled their small ivory-shod sleds. Although they seem to have had skin boats, nothing is known precisely of the boat type. The Saga of Eirik the Red mentions Skraeling skin boats or canoes propelled by staves or paddles. In the northern part of Newfoundland island where the observation was likely made such might well be a reference to Dorset culture kayaks. Needle cases and an abundance of delicate bird bone needles suggest that Dorset people wore tailored fur clothing. They had, albeit a smaller model, that traditional Eskimo hallmark, the blubber-burning lamp, carved from soapstone, which provided heat for



Early Dorset artifacts from the Newnham site near Cambridge Bay found on the '63 expedition.

the dwelling, light, a means of drying clothes, and an answer to their humble cooking needs. Implements made of antler, ivory, bone, or driftwood were tipped or edged with chipped and sometimes polished stone blades of chert, quartz, or quartzite. Such implements generally reflect a Pre-Dorset heritage but another category, blades of ground and polished slate, seem to have no adequate Pre-Dorset precursors, and thus may reflect Alaskan influences or may have been learnt from Indians to the south, some of whom used that technique.



Typical Dorset culture artifacts

The most excitement in excavating a Dorset site comes when someone unearths one of the small delicate carvings in ivory, antler, or bone, that characterizes Dorset art. These rare pieces, shaped with consummate skill with stone tools, range from about four inches to as little as three-eighths of an inch, and sometimes weigh only a small fraction of an ounce. Such figurines, often precisely realistic, sometimes of sophisticated abstraction, usually depict animals, birds, fish, humans, or mythical beasts. Sometimes a complete specimen represents only a part such as a walrus head, a caribou hoof, a human face or a gull's head. A second category of art is ornamentation, commonly of short lines, confidently set on various objects, often as a skeletal motif on the figurines.

The recent and very distinctive art of the Angmagssalik Eskimo[2] of the east coast of Greenland shows a number of traits similar to those found on Dorset culture carvings and this leads to the speculation that Angmagssalik art may have perpetuated some Dorset period art styles. If that were so one might wonder whether or not Angmagssalik culture was in some part derived from Dorset culture, whether perhaps it was a blend of Dorset and later cultures.

Until a few years ago nothing was known of Dorset people's burial practices or skeletons. Recently archaeologists have discovered stone vault graves, stone-lined pit graves, and small gravel mound graves containing grave goods and red ochre. The skeletal remains have been very poorly preserved but what little there is suggests that the Dorset people were physically typical Eskimos. The much-debated work of linguistics leads me to think that the Dorset population spoke some old variant of the Eskimo language. Thus we may conclude for the Dorset period that the general picture is of Eskimo culture, and although not all the usual Eskimo traits are present, the picture does not fall from its frame.

Around A.D. 900 Dorset culture began to be crowded off the arctic stage as the third major period of Canadian Eskimo prehistory pushed in from Alaska. Between about 900 and 1300 a vast thin drift of population spread over arctic Canada and coastal Greenland almost completely burying the Dorset. Although there is some evidence of contact and mutual influence between the older Dorset and the emigrating Alaskans, the overall view is of nearly complete replacement. This third period, the Thule culture, persisted until about A.D. 1750. Thule evolved directly out of Birnirk culture of the north Alaskan coast and Birnirk, in turn, was a product of a long evolutionary trend of Eskimo culture stages in the Bering Strait region. Although some part of that evolutionary lineage extends back to the old Denbigh Flint Complex of 3000 B.C., diffusion from Siberia and from northwestern North America along with local modifications and inventions must have played a significant part in that still little-known progression.

This seems the place to inject a necessary rebuttal to Tryggvi Oleson's surprising recent revival and extension of Duason's odd ideas on Eskimo prehistory and protohistory in Canada and Greenland. Oleson[3] argued that the old Dorset Eskimo and Greenlandic Norse groups blended, both racially and culturally, to produce the Thule culture and its people, that subsequent to this proposed origin Thule culture and people spread throughout arctic Canada and west into Alaska. That speculative

Typical Thule culture artifacts

from the Canadian Arctic

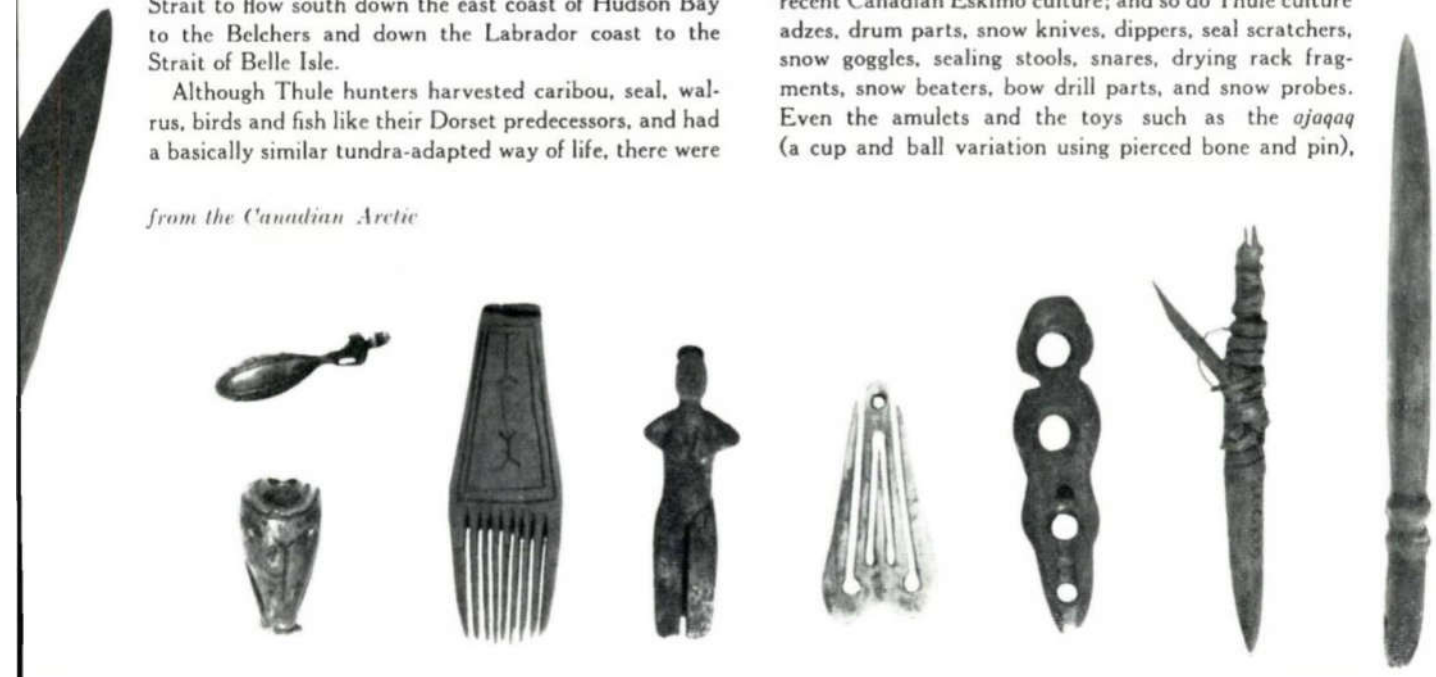
reconstruction embodies so many errors that a critic might despair of listing them in detail. Perhaps it will suffice to say that there is no evidence of a Norse-Dorset blending such as Oleson requires, that there is no evidence that the Canadian Thule culture people were racially blended with Caucasoids, and that there is no reason to believe that Thule culture began earlier in Greenland than in Alaska. The archaeological record shows but very scant evidence of Norse-Dorset contact, let alone a cultural blending, that Thule culture people were pure Eskimo in racial type and that the earliest Thule sites occur in the west, not in Greenland. The evidence to support the Oleson-Duason views would of necessity be archaeological and yet I am sure no arctic archaeologist would support their speculations. Certainly none has presented an appraisal of Canadian Eskimo prehistory compatible with that attempted by Oleson.

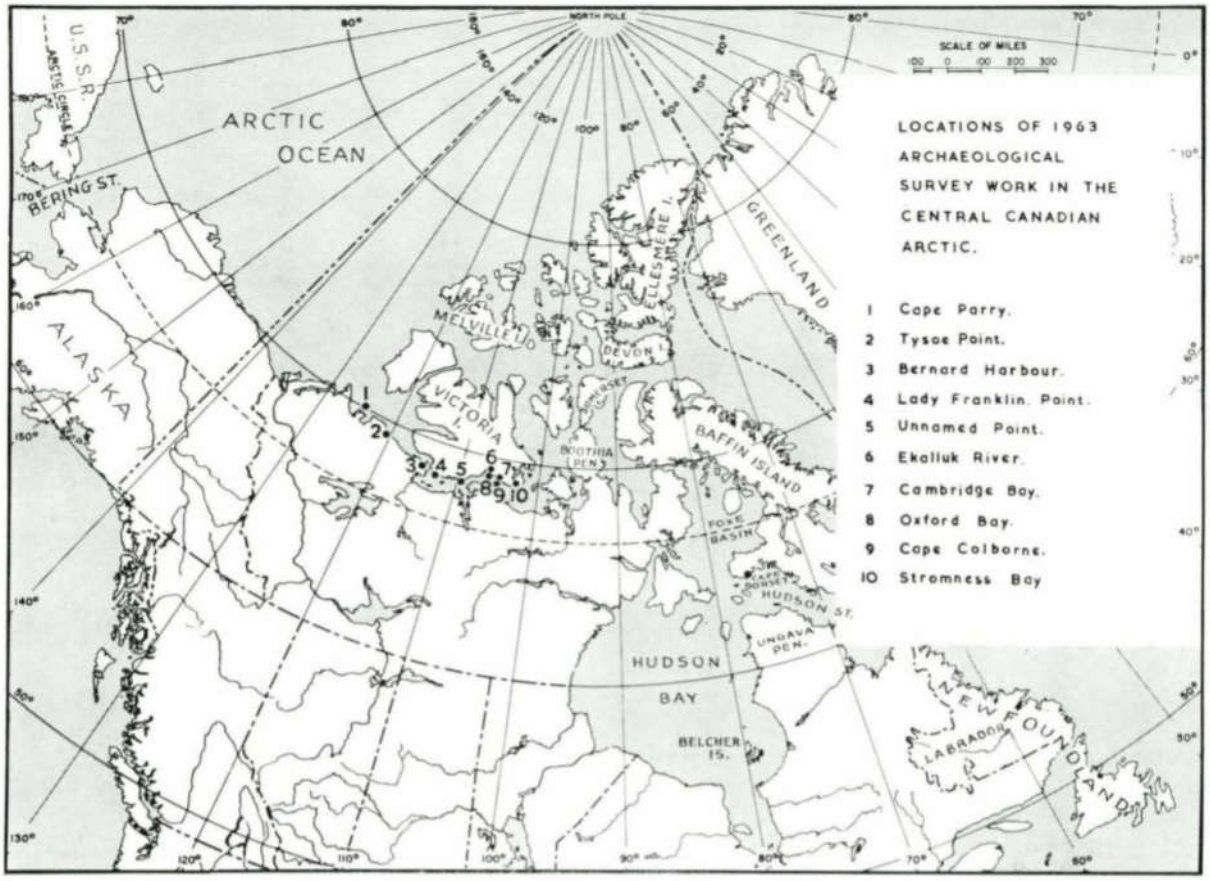
Beginning not later than A.D. 900, Thule migrants gradually wandered eastward from northern Alaska along the arctic coast and northeastward through the high arctic islands reaching northwest Greenland perhaps about A.D. 1100. Subsequently in Greenland Thule peoples came under the influence of and into close contact with the Viking settlers on that island's southwest coast. As one Thule wave washed onto the Greenland shores, another carried southeasterly crossing Hudson Strait to flow south down the east coast of Hudson Bay to the Belchers and down the Labrador coast to the Strait of Belle Isle.

Although Thule hunters harvested caribou, seal, walrus, birds and fish like their Dorset predecessors, and had a basically similar tundra-adapted way of life, there were marked significant differences between the two. To begin, the Thule had a more effective cultural adaptation to the Arctic: there is only scant evidence of domesticated dogs in Dorset culture but Thule people had dogs, a valuable aid in hunting and, harnessed for sled hauling, a means to increase the range and rate of travel; a second vital advantage for Thule was its possession of the full range of gear for hunting the great baleen whales, a major food supply not available to the Dorset people. Indeed, whaling more than anything else distinguishes Thule culture from earlier and later Canadian Arctic culture periods.

The Thule people were typical, indeed classic, Eskimo in their culture, their language, and their physical type. Skeletons from the several grave finds place them clearly in the distinctive racial sub-group of modern Eskimos. All Eskimologists agree that they spoke the Eskimo language. Their way of life is fully within the Eskimo pattern. Parts of tailored fur clothing including the parka and skin boots, preserved in the permanently frozen soil of arctic sites, are quite like recent Eskimo dress. They used kayaks, umiaks, sleds and sled dogs, whips, harpoons, spears, lances, fishing gear, and bows and arrows of typical Eskimo type. The same may be said of tools as of weapons. The women's kit, needles, needle cases, the ulu, the soapstone lamps and pots, and wick trimmers that have been excavated have close counterparts in recent Canadian Eskimo culture; and so do Thule culture adzes, drum parts, snow knives, dippers, seal scratchers, snow goggles, sealing stools, snares, drying rack fragments, snow beaters, bow drill parts, and snow probes. Even the amulets and the toys such as the *ajaqaq* (a cup and ball variation using pierced bone and pin),

from the Canadian Arctic



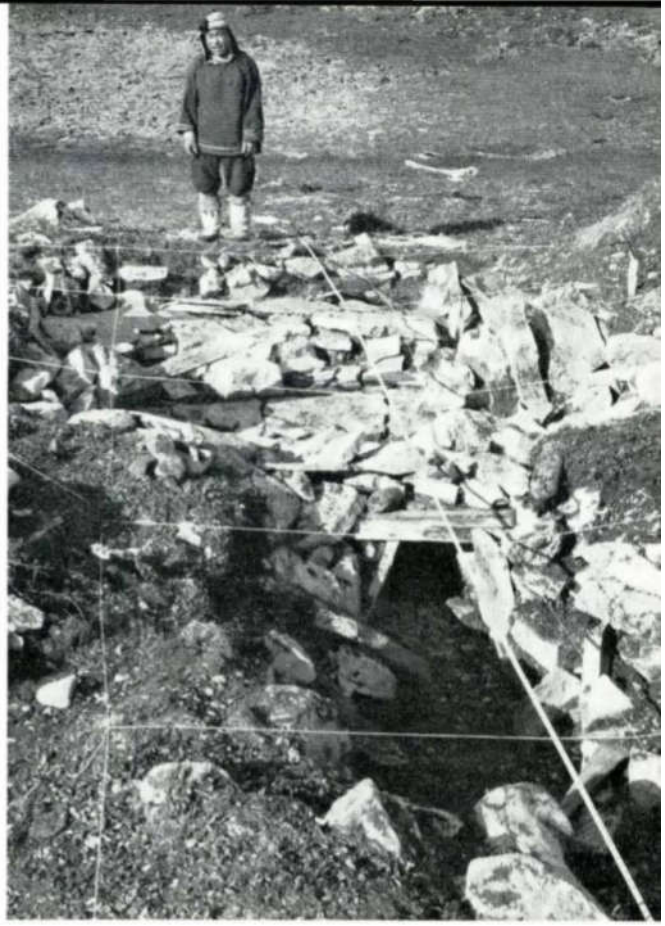


wooden dolls, model boats, weapons, and utensils echo the commonalty of Thule culture and recent Canadian Eskimo life as the latter was seen by the early European explorers and whalers. Indeed, the arrow that struck Martin Frobisher in the buttocks as he fled to the beach of Frobisher Bay was delivered from a Thule bow by a Thule culture Eskimo whose unsuspecting ancestors had come all the way from Alaska for the event. One may safely conclude that racially and culturally the modern Canadian Eskimo descended from the old Thule culture population.

Its winter villages reflect the more effective arctic adaptation of Thule culture as compared to Dorset. Thule winter villages commonly contain six to thirty rather large solid houses made of stone slabs and sods set over a whale bone framework; these have a cold-trap entrance passage, raised flagstone sleeping platforms, a flagged floor and various little storage cubicles, food bins and pantries. Usually they are partly underground, often set into a gently sloping gravel hillside facing the sea. Dorset houses, on the other hand, are usually less elaborate, smaller, and in winter clusters of only about three to fifteen in number. Like the Dorset people, Thule Eskimos used skin tents in summer and in winter they built snow-houses, perhaps only for temporary camps.

As Thule replaced Dorset over a vast area that replacement must have taken some time and undoubtedly ideas were exchanged between the contending cultures. Eskimo folk tales include numerous accounts of the Tunit or old people who were, in fact, the Dorset population. It seems likely that Thule people learnt of the snow-house from Dorset for it is not an Alaskan trait. The same might apply to soapstone lamps and pots for prehistorians have not found these in Birnirk, the Alaskan culture ancestral to Thule. Also some Thule types of harpoon heads suggest the copying of Dorset harpoon head styles. Nor was the borrowing in one direction only for it seems that the latest stage of Dorset house types incorporates the cold-trap entrance passage copied from the new Thule subdivisions. It must have been a valuable innovation since

Dorset culture house depressions on Sugluk Island, Hudson Strait.



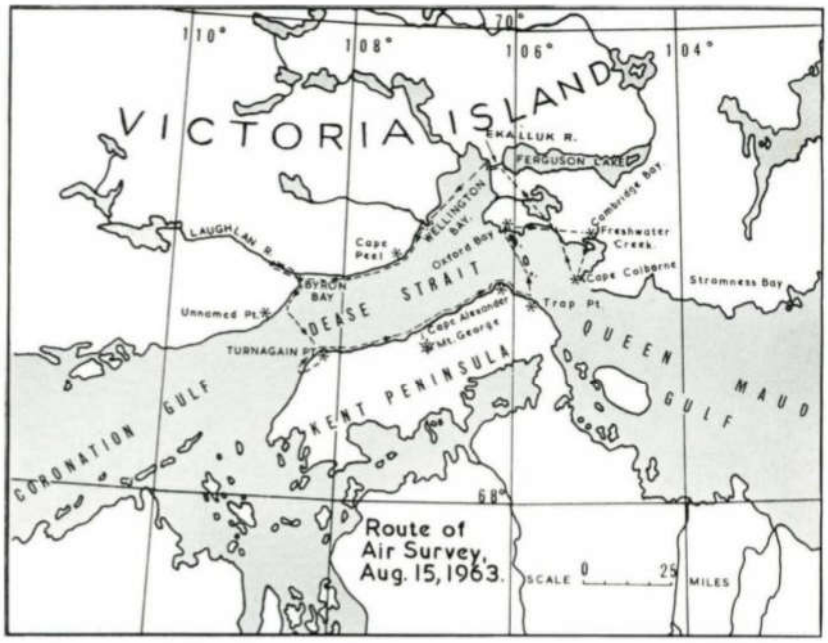
Whale bone and stone debris around house mounds of Thule culture winter villages at Creswell Bay, Somerset Island found by L. A. Learmonth of H B C and, right, an excavated house.

both Thule and Dorset people faced a worsening phase of climate after A.D. 1100 in the eastern Arctic.

Coming down the west coast of Greenland, Thule wanderers soon contacted the Vikings who had begun settling in southwest Greenland a few score years before. The Vikings had considerable influence on the Thule Eskimo in Greenland and, over the generations, much contact with them. But there too, deteriorating climate (and a lack of concern in Europe) squeezed the Norse settlements out of existence, so that in the fifteenth and sixteenth centuries the diminished remnant of Norse Greenlandic culture blended with its Viking-influenced Eskimo matrix.

The fourth and final stage in Canadian Eskimo archaeology is that of the recent Central Eskimo which can be dated from the eighteenth century. The recent people derive directly from the Thule culture population; but there are differences and they are largely a result of a gradual collapse in, and virtual end to, the Canadian Eskimo hunting of baleen whales which had been an economic mainstay of the culture. When whale-hunting declined, the large permanent villages of sturdy winter houses were abandoned, for a more nomadic life was required now that the people became increasingly dependent on the more scattered herds of seal and walrus. Thus there was a gradual shift to the snow-house on the sea ice as the customary winter residence. Further, the "Little Ice Age," a time of harsher climate from 1650 to 1850, seems to have forced a withdrawal of population from the northernmost Canadian islands—Ellesmere, Devon, Somerset, Cornwallis and Bathurst—that the Thule people had settled, east to Greenland and south to the south coast of Victoria Island, Boothia Peninsula, and Baffin Island. That "Little Ice Age" bringing more extensive ice cover and shorter seasons of open water may partly explain the decline in Thule culture whaling. The whales' summer range might also have been shrunk by a decreasing depth of sea passages caused by the continuing post-glacial rise of the land. Third, the diligence of European whalers in northern waters may have reduced the supply of whales available to Thule harpooners. In fact very little is known of this transition except, of course, the matter of whaling and the very minor changes in styles of harpoon heads and other fragments whose study writes the prehistory just summarized.

The other change from Thule to recent Central Eskimo culture rests in the introduction of European goods and ideas. That package of steel needles, so generously given, exploded into trading stations, missions, governments, a D.E.W. line—and even sore-backed archaeologists wandering about in a vast past picking up pieces lost, left, and forgotten like the tribes that used them.

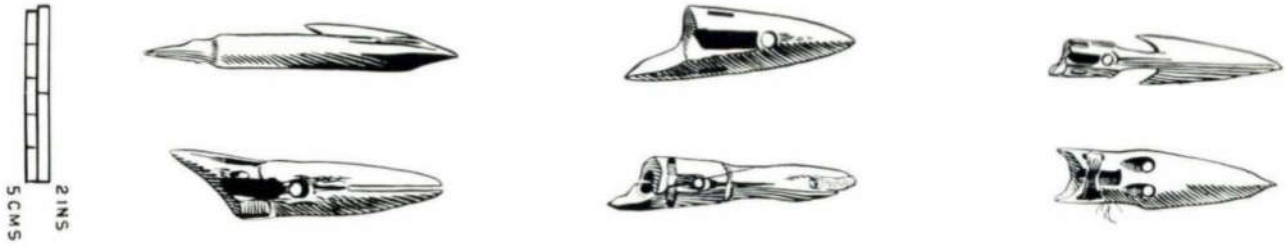


THE 1963 ARCTIC SURVEY OF THE NATIONAL MUSEUM OF CANADA.

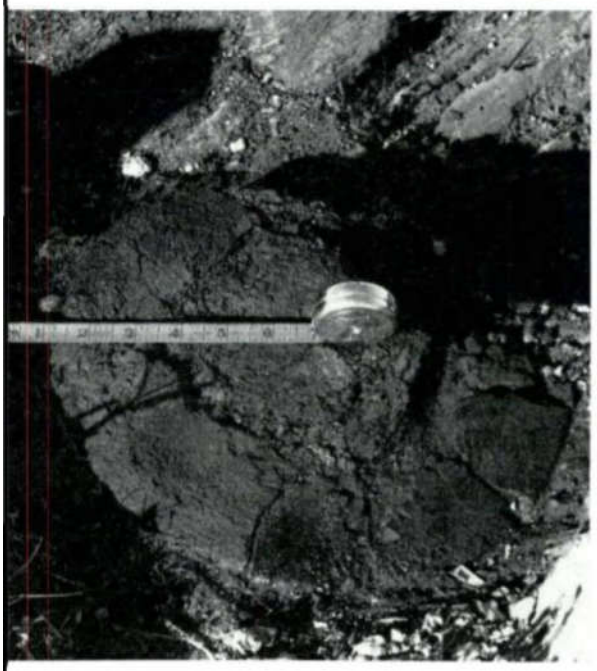
Three of us began picking up pieces in July 1963 when we landed at Cape Parry with high hopes and too much kit. The other field party members were the artist, Hugh C. Monahan of North Vancouver, and William T. A. Nicholls of Toronto. Specifically I hoped to find coastal sites to chart that first eastward movement of the Pre-Dorset people. We also sought early Thule sites to learn the nature of that culture as it began to spread east from Alaska about A.D. 900. Further, I wanted to learn whether or not the Thule migration had moved along the Coronation Gulf-Dease Strait area, whose waters are devoid of whales, and if it had, how had these Thule whalers adjusted to the lack of whales. There was also a chance to find early Copper Eskimo sites that might provide new information on that tribe's origin since Diamond Jenness, Canada's foremost anthropologist, had long ago suggested that they came to the Coronation Gulf region from the interior. Conversely, I was one of those who suspected they and their culture had developed *in situ* from the Thule pattern; unfortunately for that suspicion Thule was still unstudied, even undiscovered, in the region. Last, prior to our 1963 work, Dorset culture had not been found west of King William Island so I was anxious to discover who, if anyone, had occupied the Amundsen Gulf-Coronation Gulf region between the time of the Pre-Dorset migration and the recent Copper Eskimo or, if we found them, their Thule predecessors of about A.D. 900 to 1750.

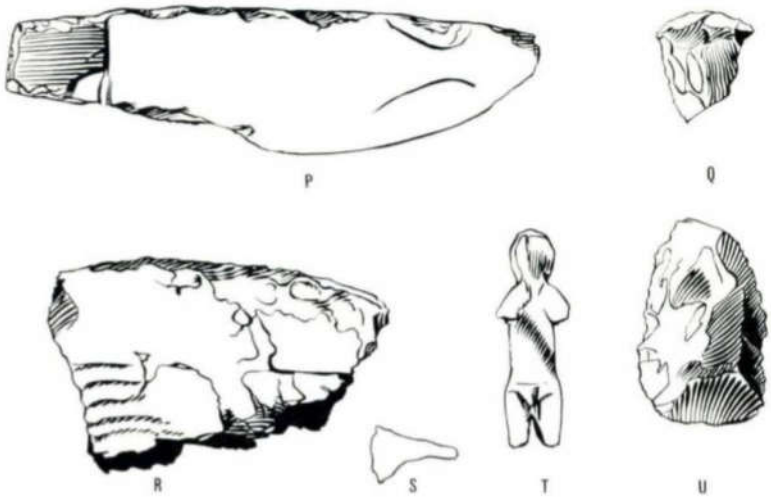
At Cape Parry we discovered in sequence the hospitality and legendary food of the D.E.W. line and then the low grassed-over mounds of two small Thule culture winter villages. After a week's digging we had enough specimens to know that the older of these villages did not belong to the earliest stage of Thule culture but to a slightly later stage when Thule was evolving into its recognized Eastern Arctic variant. I guess-dated it about A.D. 1200, some 300 years after the presumed date of the beginning of the Thule migration. Subsequently two samples from Cape Parry were tested by the radiocarbon dating method. A year after the digging I received the test results with a splash of surprise and confusion for they assayed at A.D. 730 and 760. Radiocarbon dating is subject to several kinds of errors but, if correct, these dates mean that Thule culture originated and began to move east across Canada to Greenland much earlier than is generally believed. That is possible for the question has been more debated than tested by research.

Hopping some 260 miles southeasterly to Bernard Harbour on the mainland side of Dolphin and Union Strait we had some of our best luck. Here we found four nondescript little Dorset culture summer camps. In the Eastern Arctic I would have thought them hardly worth an effort, artifacts being so sparse in them; but at Bernard Harbour they were heady wine rather than small beer because they extended the known range of Dorset culture some 450 miles westward. By doing so they did much to answer one of my questions—who had occupied the area after Pre-Dorset times and before the Thule period? Only one site yielded enough artifacts to allow an age estimate, and it seems to have been occupied about 2000 years ago. We felt here a bit of history as well as prehistory for in 1914 Diamond Jenness had camped nearby and fished the same stream as the Dorset people 2000 years before, little thinking that in 1925 he would discover the Dorset culture. Coming full circle we found on top of a nearby caribou look-out point a few flint chips and a 1913 Canadian penny, dropped perhaps by Jenness or one of his companions.



Broken pottery lamp on split log floor of Thule culture house near Cape Parry.





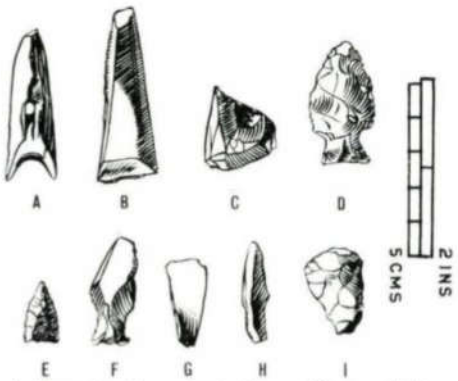
Fragments from the Thule culture Jackson site near Cape Parry excavated in '63. At top, first an arrow head, the rest harpoon heads, of antler; P knife blade, ground slate; Q end scraper, quartzite; R Barrow Curvilinear Paddled type rim sherd; S fragment of copper blade; T doll figurine, wood; U end scraper, quartzite.

From Bernard Harbour, across Dolphin and Union Strait to Lady Franklin Point on Victoria Island we followed Jenness's sled path, indolently watching a movie on board ship. At Lady Franklin Point, a large winter village of 21 houses showed that Thule people had not ignored that area for its lack of whales but had adapted to it by heavy exploitation of caribou which migrated twice yearly through this locale crossing to and from the mainland. Caribou whould have been absent here in winter but our identification of nearly 6000 excavated bones showed 82 per cent caribou, 17 per cent seal but only one in a thousand of whale bones. The autumn caches of caribou carcasses must have provided quite a larder for these Thule people and, in fact, we noted large numbers of old limestone caches spread over the northwest side of the point.

We moved east again to the Byron Bay region on the central south coast of the island. After finding nothing but exercise we flew to Cambridge Bay. About that tundra metropolis archaeological opportunities bubbled and popped in profusion edging on confusion. Dave O'Brien of the Northern Affairs department gave us several site leads; Don Hamilton reported others; Constable Dale Wishart threw more into the hopper; Bill Oldfield, Ken Kitchen, Peter Holmes and several other D.E.W. liners helped us at every turn. Not least was that delight of arctic researchers, an Otter aircraft and its P.W.A. pilot, Don Hamilton, who handled our flying needs in flawless fashion.

We found five sites about Cambridge Bay, calling them Newnham, Girton, Clare, Downing, and Pembroke after Cambridge University colleges. Newnham, about 2200 years old, marks a warm weather camp of Dorset Eskimos, living in skin tents, fishing, and hunting caribou. Pembroke, named after Monahan's old college, is a cluster of several tent rings and small partly-underground autumn houses about 800 years old.

On one of those superb calm crystal days of the arctic summer the Otter lifted us out of Cambridge Bay for a low-level aerial survey of the Dease Strait coasts, and to check a report of old houses on the Ekalluk River. After landing in the river we quickly found three sites which demanded a longer return. Roaring off the river, the Otter carried us southwesterly down the north shore of



A Dorset culture tent ring at Bernard Harbour and some artifacts from this site: A harpoon head, antler; B ground fragment, slate; C polyhedral core, chert; D side-notched end blade, chert; E triangular end blade, chert; F burin-like implement, chert; G triangular microlith, chert; H tanged microblade, chert; I end scraper, chert.

Dease Strait to Byron Bay. As we saw nothing of consequence we crossed to Turnagain Point on the mainland but failed to see the old village that Thomas Simpson of the H B C discovered there in 1838. The Otter then followed the drab north shore of Kent Peninsula whose colourless, featureless beaches stretch northeastward to Cape Alexander. Again we found nothing of archaeological concern. Around that cape and nearby Trap Point occurs a handsome change to colorful rock and the sinuous symmetry of old beach lines. Looking out, Monahan sketched at a mad rate, roaring fierce but fruitless oaths with each change of the Otter's course. It seemed a likely place for sites but art did better than airborne archaeology until we crossed north over the Finlayson Islands back to Victoria Island. As the Otter lifted up from the sea over the barren gravel shore, Bill Nicholls shouted, grinned, and pointed down. As we circled back all could see the outlines of some forty old tent rings scattered over the grey gravel beach terraces long abandoned by the receding sea. The plane landed and we tumbled out, expecting to find something old and rich in artifacts. In a race against the fading light, we began a diligent examination about the tent rings and food caches. For all our efforts we managed the miserable total of only ten artifacts. Those few artifacts, all of Dorset culture, hint at an occupation roughly 2000 years ago. As I finished the photography, notes, and my last biscuit, Bill took measurements and Hugh, happily out of the sky, made the series of sketches that became the cover of this *Beaver* outfit. As the light faded, we stumbled down to the Otter which immediately thundered up over Starvation Cove, hauling us to its nest at Cambridge Bay, and leaving what we named the Oxford site to the dark and its ghosts.

Now came the awkward decisions forced by an excess of worthwhile sites—five near Cambridge Bay, three or maybe more at Ekalluk River, the Oxford site near Starvation Cove, and another at Cape Colborne. We were scheduled to fly south in nineteen days and in addition there was a chance of joining the Polar Continental Shelf Project to work on Melville Island. The Arctic sometimes makes decisions for its guests and so it developed. We scrambled about Cambridge in a dither of digging, walking, photography, sketch-mapping, note-taking, and cataloguing; Melville Island was cancelled; a single day was devoted to Cape Colborne; then on August 24th the Otter flew us out for excavations at Ekalluk River. After proper debate, the three sites there received the spirited Scotch names Bell, Ballantine, and Buchanan—less for my ancestry than in nostalgia and as a wistful rebuke to the state of our supplies.

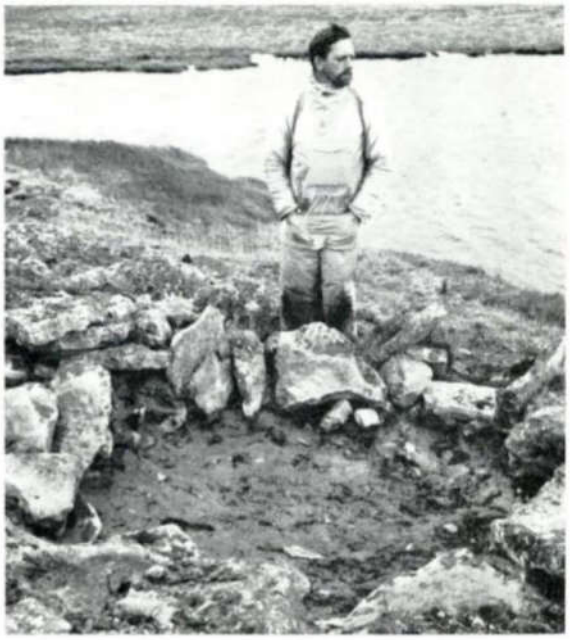
Resting on the hillside where Ekalluk River leaves Ferguson Lake, the sixteen old house ruins of the Bell site would provide a pleasant and profitable summer's digging. The survey's purpose, however, was to locate sites and to complete only sufficient preliminary testing to determine their culture type as Pre-Dorset, Dorset, Thule, or recent Eskimo and to estimate their age. Thus on the Bell site, as with Buchanan and Ballantine, we set about making a surface collection of artifacts, digging test trenches and gobbling time on the interminable tasks of notes, maps, photographs, and field catalogues. The Bell site proved to have had a Dorset culture occupation about 2000 years ago and also a later Thule Eskimo occupation. Again, as first at the Lady Franklin Point site, and then in the Pembroke site at Cambridge Bay, we found a Thule population managing without whales but heavily dependent on caribou with only a moderate or minor inclusion of seal. The counts of various kinds of excavated bones and the site locations make it clear that the east-drifting Thule population settled this part of the Arctic despite its lack of whales and walrus—they

settled it by concentrating their hunting skills on the abundant caribou and fish along with seals and to a lesser degree on other game. That concentration on caribou reminds one of the Copper Eskimo and leads me to believe even more than before that the Copper Eskimo are the descendents of an old local Thule culture population. One may even wonder if some of them, heavily dependent on and attracted by the caribou, abandoned sea hunting and drifted inland following the caribou south to become the Caribou Eskimo of the Barren Lands interior west of Hudson Bay. The "Little Ice Age" of A.D. 1650-1850 might have fostered such a retreat of some bands from the arctic coast. These suggestions of course are only that, still a long, long way from proof, but there are straws in the wind now—an improvement over empty archaeological air.

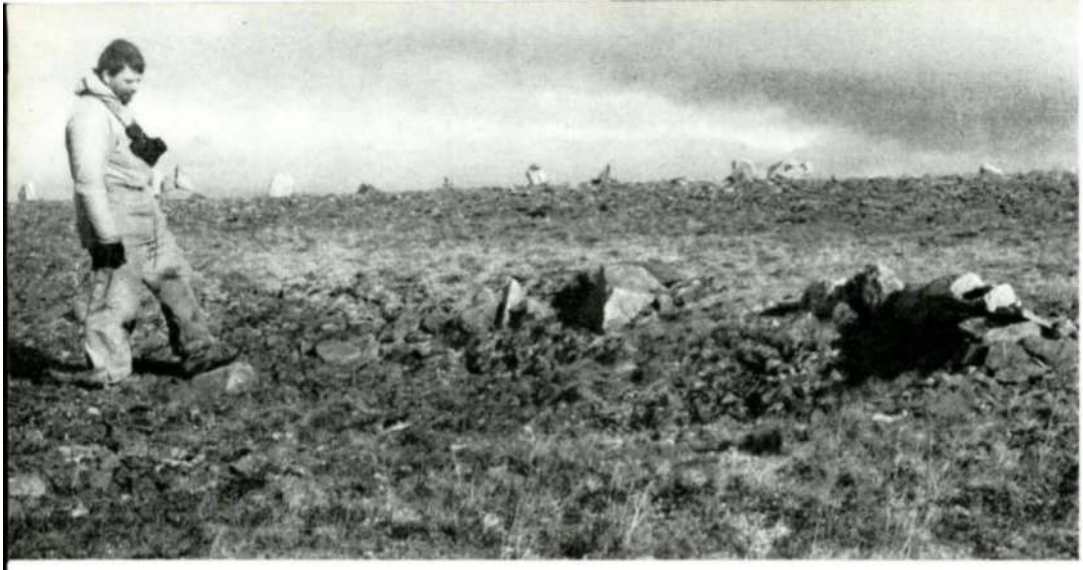
The Buchanan site crowns an otherwise undistinguished hillock, near the Bell site and overlooking the west end of Ferguson Lake. No old houses or tent rings, only a scattering of tiny chert chips and bits of bone mark this site's surface. Since there were no casual bystanders to snicker, we snuffled about, rather dog-like, on hands and knees to find the small grey chert artifacts hidden in the coarse tweedy turf. The Dorset nature of the site was immediately apparent and, after some hasty test-trenching, we recovered enough diagnostic pieces to conclude that very early Dorset culture Eskimos had camped there about 2500 years ago.

Buchanan needed and got only a single day. My journal that evening recalls a blustery Sunday of rain and the season's first wet flurry of snow, our soggy clumping back to camp and Monahan's sudden burst of Irish cheer soon channeled into a splendid supper. Afterwards, Hugh laboured with bird skins for the museum's collections; Bill pumped the stove to a roaring blast to dry the festooned array of socks, mitts, innersoles, pants, and parkas; I curled around the "table", cleaning, sorting, cataloguing, packing, and admiring the day's take from the Buchanan site. Probably very similar scenes existed that night in the many scientists' tents around the circumpolar world.

During the days and evenings at Ekalluk River we wandered round the place finding old food caches, another site, many tent rings and inukshuks. Inukshuks, "like a man," are stones or a small pile of stones set up by Eskimos sometimes as aids to navigation but most often to guide or funnel caribou to a place where they can be ambushed by Eskimo hunters. On the uneven plain north of Ekalluk River Bill Nicholls found and recorded a system of inukshuks more elaborate than any I had ever seen before or even read about. The stones, in piles or set on edge, are about four feet apart, extending in a curving line for about three-quarters of a mile along the crest of an old beach ridge. At the ends of that curve the inukshuks stand in a single line but in the central part of the curve they are clustered in groups about 150 by



Interior of a Thule culture hut after excavation at the Pembroke site and some Thule artifacts, top row from the Pembroke site and the rest from the Lady Franklin Point site.



Bill Nicholls examining a shooting pit, with part of the associated inukshuk system beyond on the ridge, at Ekalluk River.

40 feet with gaps of 30 to 50 feet dividing the groups. At each of the several gaps, but on the backslope of the ridge, occur three to five pits gouged out of the ground. These pits, up to twelve feet in diameter and as much as two feet deep, often are provided with a low balustrade of stones on their rims facing towards the gap. At least 24 such pits were seen and the smallest of them would readily hold two marksmen. The inukshuk system forms a deep curve that partly encompasses the plain stretching down from it to the river. Behind that curve a barren rock-and-gravel hillside rises upward for several hundred feet. Clearly, prehistoric Eskimo had employed here some of the classic tactics of infantry warfare. The migrating caribou herds would have been guided onto the plain below the inukshuk system by women and children and then driven into the concavity of the curve of inukshuks. Harried from the rear and looking upward from the plain to the old beach ridge the animals would see on the near horizon the gaps between the clusters of inukshuks. Stampeded, the panicked animals would have avoided the inukshuks, and thus charged through the gaps over the ridge crest directly onto the hidden shooting pits. A few weathered wood arrow fragments and a single Thule culture arrowhead found in the vicinity echo the hunters' eager violence.

Through the vital aid of Carl Franzin, working with Eskimos on a co-operative char fishing project, we also kept track of the Otter, busy moving Eskimo children to Cambridge Bay for their flight to the boarding school at Inuvik. We decided to return to Cambridge on August 31st in order to finish chores on sites there and to prepare for our scheduled September 4th flight to Winnipeg. With the many other demands on the Otter and the increasing frequency of snow flurries a longer delay seemed unwise since archaeologists cannot excavate freezing ground, flights south are not over frequent, and we all had work piling up in the south. Having decided to leave, leaving becomes a sad prospect for summer scientists on the tundra, not only for the natural beauty and happy work to be abandoned, but also because the ordered routines, formal responsibilities, and petty annoyances of the office appear more repugnant when the mind's eye sees them from the tundra coast.

Based on several such experiences, I share with most archaeologists the fear (and hope) that important finds will occur on the last days of the field season when one is tiring but also entirely committed to both work in progress and a departure date. Thus as we continued digging and site-hunting, two apprehensions grew strong in the closing days: first, that perverse luck would turn up something and second, that since the season began we had failed to find a site of the Pre-Dorset, that first period of man's ranging over the Canadian Arctic between 3000 B.C. and 800 B.C.

On Thursday, August 29th, Hugh and Bill walked out old, high, beach ridges seeking the obscure tent rings and flint chips that would mark a Pre-Dorset site; meanwhile I searched again over nearby ridges for a Pre-Dorset camp and finished work on the Bell, Ballantine and Buchanan sites. The Buchanan site is a Dorset midden about 2200 years old but much of it now is eroded away by the Ekalluk River. Late in the afternoon, moving upslope and away from the river, surface collecting Dorset pieces to determine the extent of the Buchanan site, I picked up three burin spalls. The three spalls in turn picked up my interest, for a burin spall is a tiny chert tool, a type very rare in Dorset but common in Pre-Dorset. They were clue enough and upslope a few paces was a flat well-drained little terrace, a spot well suited for the few skin tents of a Pre-Dorset hunting camp. On examination the terrace surface showed no old tent rings, no bones, no artifacts, no flint chips. Nevertheless the burin spalls surely had washed down from this spot to mix with the Dorset pieces. Taking a shovel, I punched a small exploratory hole into the earth and under the moss and willow found the usual brown soil which was no midden stratum—wrong colour, no bones, no artifacts. But under that morosely unproductive layer

began a dark brown peaty humus containing old, stained caribou bones, flint chips and occasionally an artifact. By 8 p.m. the light was hopelessly dim but there were enough artifacts from the trench to prove we had at last caught up with the wandering Pre-Dorset hunters in their now silent and buried camp.

Gloating over that handful of stone and bone objects all the way back to camp I half-feared that my companions had also found a site demanding the last of our scant remaining time. They had not, but Hugh's many-splendoured genius expressed itself again in a classic combination of arctic cuisine—fried char and baked beans.

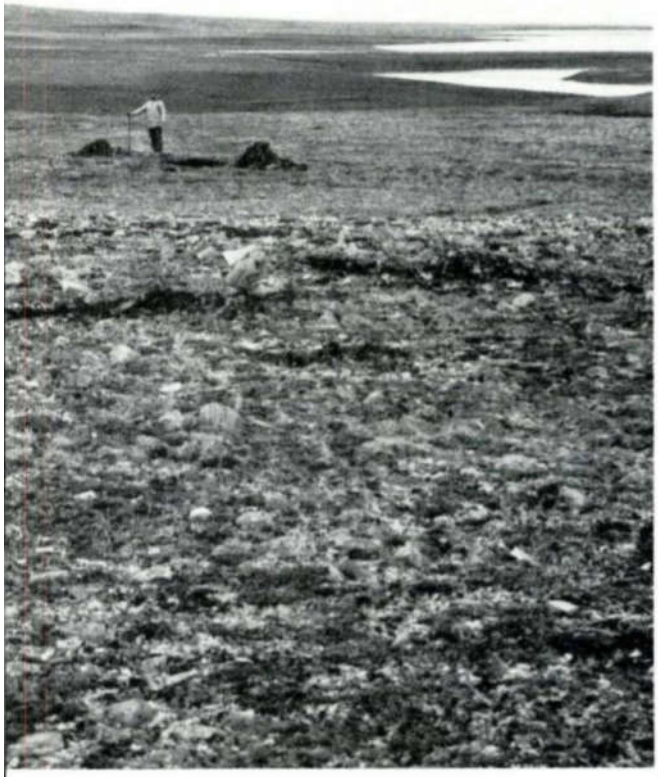
All the next day and most of Saturday we worked hastily, meticulously, in the buried Pre-Dorset midden and ended with the modest total of some one hundred artifacts. Those bone arrow heads, chipped stone burins, scrapers, delicate chert points and side blades echo the ancestral Alaskan Denbigh Flint Complex of 3000 B.C. The collection also reflects the close relationship between the Buchanan Pre-Dorset caribou hunters and other ancient Eskimo groups found further east in the Canadian tundra and Greenland.

On Saturday afternoon the Otter splashed into the river, we rolled our rather snowy belongings into it and along with a load of Carl Franzin's co-operative fish, hopped back to Cambridge en route south. ◆

1."The Archeology of Cape Denbigh" by J. L. Giddings, Brown University Press, Providence, 1964, p. 243.

2."Eskimo Sculpture" by Jorgen Meldgaard, Methuen, London, 1960.

3."Early Voyages and Northern Approaches" by Tryggvi J. Oleson, McClelland and Stewart, Toronto, 1964.



Test-trenching the Pre-Dorset part of the Buchanan site, Ekalluk River and Ferguson Lake in the background. Artifacts from this site are shown on page 6.

House ruins at the Bell site near the western end of Ferguson Lake where remains of Dorset and Thule occupations were found.

Field camp at season's end—excavation stops when thawing stops.

STUPID DOG

by Philip de Carteret

who served with Revillon Frères in the Eastern Arctic in the thirties

LORENE SQUIRE

WHEN I WAS a young man in the Raw Fur trade I was a very keen breeder and driver of sled dogs. One little grey bitch puppy, who was so small and feeble that she was everlastingly being shouldered away from her mother's teats by her brothers, I had to bring into the house and feed on condensed milk from a bottle, and she thrived and grew on this until she was old enough to eat solids. I named her Sheenalnak.

When Sheenalnak was two years old she had a small litter, but although a clever and willing worker she had never recovered from the poor start she had in life. Only one puppy survived and this was a grey, like herself. At birth this animal was like any other newborn pup, wet and ugly, but as time went on it seemed that we had got something of an oddity—he never grew a coat of hair! He merely had a massive coat of what looked like wool. His face was very pointed and white and he had two button-like black eyes, partially obscured by a shaggy fringe. We named him Mirkok. He was so unusual he was considered, in his day, one of the Sights of Chimo, and hunters from other posts made a point of inspecting him in order to be able to say with authority that such a spectacle really existed.

Owing to his unfortunate appearance his fellow workers made him a butt for crude forms of humour, like nipping his ears and legs on all occasions and in general making his life a misery. He grew up, naturally enough, a bad tempered and stupid dog who lived a solitary existence. The only contacts he had (except for the aforesaid joking) with the rest of his outfit were at mealtimes and when he was harnessed up and working.

At Chimo, on the Koksoak River in Ungava district, we were always short of proper dog-food, meat or fish, so we had to make do with a substitute. We had a large shallow rectangular tank beneath which a fire was lit, and in it we concocted a mush or porridge of cornmeal. Into this sinister-looking dish was thrown half a rotten salmon, well broken up, to give it flavour.

During his first winter, when joining in the food rush Mirkok was gradually pushed, shoved and hoisted until he found himself standing right inside the food tank, trying to snatch mouthfuls while endeavouring to defend himself from the nips of the surrounding feeders. He got cornmeal in lumps over his head, belly and tail, frozen into the matted wool to such a degree that we couldn't get his harness on, until we had cut the pieces free with shears. After which he looked worse than ever.

When in harness Mirkok worked well, but he was fantastically stupid. Our teams were driven in the Eskimo style; each dog had his own trace attached to a long rawhide centre line connected to the sled. The layout resembled a partly open fan with a handle—the handle being the centre line, which we called a bridle, and the backbone of the fan the traces.

This system allowed great flexibility to the team, who were roughly in pairs when closed up, with the lead dog, or more usually bitch, out ahead on a longer trace. On rough ice each animal could pick his own way, within limits, and thus there were always some dogs hauling, while others were scrambling up ice-floes or leaping down from them. In open country the team fanned out and all were able to pull together. It was impossible for a dog to shirk without being observed, as his trace immediately went slack, though each was permitted to obey the calls of nature provided he didn't waste time. In rocky or bush country the dogs were trained to close up and run in pairs. That is, all except Mirkok.

This beast would behave splendidly for something like twenty miles; then, as soon as we got on a steep downward gradient among boulders or trees, the whole team galloping hard, the loaded and heavy sled gaining momentum, the driver leaping about now this side, now that, to heave the sled clear of rocks or stumps, what did Mirkok do? He ran out of line and the wrong side of a boulder or tree, until the bight of his trace hit the obstruction and amid the curses of the persons on the sled and

his own howls, he would be yanked clear off his feet, onto his back, and drawn swiftly in the direction whence he had come, until either the trace snapped or the sled was brought to a standstill.

For this he was invariably well whipped, cursed, sorted out, nipped at by his comrades and put to work again, but he never learnt sense.

Now it was an axiom in the North that a person should not travel alone. It is too easy to die, and from the most foolish reasons. Sprain an ankle and you can't handle your sled; slip on glare ice and give yourself concussion with a bang on the head while your dogs trot merrily away and you are seen no more. Therefore it was the height of foolishness on my part to go off alone one spring to pick up some gear we had left in a snowhouse, a mere twenty miles away. I wanted to get it back to the post before the proper thaw set in—in particular I was anxious to fetch my rifle which I wanted for seal hunting.

My companion had gone off to the coast with our hunters to look for walrus, and the only people around were a bunch of old crones. This gave me no choice but to remain static or travel alone. I thought I'd chance it; after all, it was only for one sleep.

When I reached the spot where the snow house had been I was unable immediately to locate it. Several blizzards had occurred since I was there and it had got buried. I stopped the dogs and started poking about with a snow knife to try and find the roof. Suddenly the snow gave way under my feet and I was precipitated into a pit about six feet deep. I'd found the snow house all right. Quite unhurt, but cursing the snow down my neck, I found the rifle and other gear and pushed it all up through the hole. Then there was the small matter of getting out. An old snow house has a thick film of ice inside and I was standing in a convex shell higher than my head, feeling like a chicken in an Easter egg. It was too high to jump up. When I grabbed the edges of the hole, they broke away giving me a faceful of snow. The only recourse was to cut away an incline and crawl out.

By good luck I still had the snow knife, and set to work. It must have been an hour before I was able to emerge. I crawled out and looked for my team and sledge—they had gone! Down in my pit I had heard nothing, and inspection showed me that, as will occasionally happen if they think they can get away with it, the dogs had taken off in the direction of home.

After a short period of calling on my Maker and tracing the family history of all sled dogs, together with a resumé of their more unlovable vices, I picked up my rifle and started walking. It was May, and the snow was soft during the day. The going was heavy and I sank knee deep at every step. Hunger gnawed at my insides and thirst parched my throat. I considered sucking snow but remembered a time before when I was a greenhorn and nearly paralyzed myself doing that, so refrained.

It started to get dark and to freeze again. I was not feeling a bit happy. I might not have perished, for I still had my snow knife and could build myself shelter, still I did not fancy a night spent without a sleeping bag, food or drink in a snow house, especially in clothes which were damp with sweat. I decided to give myself another half hour of struggling on before finally holing up.

As I topped a rise in the ground, making a bit better time as the ice crust formed on the snow, I looked down the rather steep reverse slope. There was the team and sled, the former quietly curled up and settled down for a sleep. Jammed against a boulder on his back was Mirkok, still feebly struggling. He'd gone round the wrong side again, and this time his trace had held.

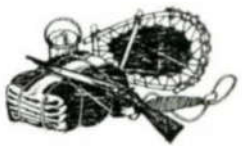
I never whipped him again and when he eventually died I had his skin made into a rug for my bedroom. It was a constant reminder that if Mirkok had been stupid, I had only to look into the mirror to see his human counterpart. ◆

FR. G. MARY-ROUSSELIERE

BY W. A. McKAY

the story of
THE CANADIAN FUR TRADE

In the opinion of the author, history should not be a dull subject but while he is prepared to treat it in a lively way he has respect for the facts and his story, of which this is the first part, is the product of careful study and research. Mr McKay, who is fur biologist with the British Columbia government Fish and Game Branch, is the descendant of generations of fur traders who served the Hudson's Bay Company from 1790 on. His history of the fur trade in Canada was prepared for "Wildlife Review," published by his department, and grateful acknowledgment is made to the editor for co-operation in making available this refreshing view of historical events. Illustrations are by Robert Bruce.



THE FUR TRADE in Canada started in the area of the Gulf of St Lawrence in 1534 when Jacques Cartier, in the process of discovering Chaleur Bay also discovered a group of Indians (Micmacs) who "made frequent signs to us to come on shore, holding up to us some furs on sticks. . . ." Cartier bartered for these furs, which turned out to be beaver robes and thus initiated the fur trade in Canada.

Cartier states that the Micmac Indians were very happy to trade and were "leaping and dancing in their canoes" when he left. He adds, somewhat unnecessarily, that "they were a small Tribe." Any tribe that practices dancing in canoes is bound to be small.

The fact that the Indians were holding up their furs on sticks is of some significance in assessing the motives of early trade. These early furs were not beaver "pelts" as we know them today, but beaver "robes" which the Indians were wearing fur side in, as clothing. They consisted of from five to eight pelts trimmed into rectangular shape and sewn together, using bone needles and moose sinews. With constant wear, the guard hairs wore off, the fur became "well greased, pliable, yellow in colour and downy." With further constant wear, it probably also became "smelly." If the Indians were holding their furs out on sticks, Cartier must have arrived just in time.

In any case, both parties benefited from this exchange and the Canadian Fur Trade was an established fact. The Indians got needles, awls, hatchets, knives, and kettles to help them in the collection of more "robes" and Cartier, on returning to France with his pungent cargo, found a good market for it in the French and Belgian hat trade. Beaver (or castor, as it was called) was found to be ideal in the manufacture of felt for the hatting industry and during the next century the popularity of the beaver hat in Europe determined to a great extent the development of the fur trade in Canada.

With the creation of a demand for Canadian beaver in Europe, the "skin game" began to develop rapidly. The first area of development was in the St Lawrence River

. . . holding up to us
some furs on sticks . . .

area, where three "trade rivers" entered the St Lawrence from the Canadian Shield area to the north. These were the Saguenay River entering at Tadoussac, the St Maurice River entering at Three Rivers and the Ottawa-Gatineau System entering at Ottawa and giving canoe access to the area between James Bay and the Great Lakes country.

The French, established along the St Lawrence, set up trading posts at the mouths of these "trade rivers" and the Hurons and Algonquins who were the closest Indians (the Micmacs were an even smaller tribe by now) were the first to trade.

Apparently at this time the Indians of Eastern Canada had a cooking problem. According to early historians, they were dependent on "grotesque, immovable wooden cauldrons fashioned from the trunks of trees." The technique was to put water and meat into these contrivances and then drop hot rocks into them to bring them to a boil. Apart from the manual difficulties of bringing this sort of stew-on-the-rocks to even a gentle simmer, there was the problem of moving camp in a birch-bark canoe, which was not only impractical but ridiculous. As a result, the Indians became attached to their cooking utensils in the strictest sense of the word and presumably lived within stone's throw of them.

With the appearance of the "trade kettle" on the scene, Indian mobility was increased tremendously. Life developed into a ceaseless hunt for beaver. Armed with muskets in place of bows and arrows, steel hatchets and knives in place of stone, French awls and needles in place of bone, and portable kettles in place of stationary tree trunks, the Indians were able to get down to some serious beaver hunting. The idea was to get as many beaver traded for as much useful equipment as possible before the French smartened up.

Meanwhile, back at La France, the hat-makers had evolved the perfect formula for the construction of beaver hats, which were what the otherwise well-dressed European gentleman had decided was *la mode* for that period. This formula called for three quarters of *castor gras* (greasy beaver) to one quarter of *castor sec* (dry beaver). *Castor gras* was a beaver robe that had been worn to a sufficient degree of greasiness (but still distinguishable from castor oil) to be acceptable to the peculiar demands of the hat trade. *Castor sec* was a pelt in the dry state. The hat formula, however, was rigid—it had to be three *gras* to one *sec*. The literature doesn't state why people wore these things but merely that they did.

This formula, of course imposed an additional responsibility on the Indian. Not only did he have to catch the beaver but he was expected to wear at least three-quarters of his catch to a sufficient degree of *engraissement* (French for greasy) to ensure that it would grade out as a *castor gras*. This got to be quite a hardship, especially in the summer. You no sooner got comfortable in a *gras* than you had to start breaking in a *sec*. After several years of this, during which the hat-trade flourished, the French got rich, the beaver got scarce and the Indians

got scar tissue, the Indians decided that the trade was about due for expansion. Now that they had portable kettles, the Hurons and Algonquins decided to set up as middlemen in the fur trade.

Up north, on the headwaters of the trade rivers and in the Great Lakes country, lived the Iroquois. The Hurons and Algonquins started up a brisk trade in worn out kettles and second-hand axes for the *castor gras* of the Iroquois and in a short time, had them all wearing *castor sec* too, a service which they later regretted. The Iroquois in turn set up a trade with the Assiniboines and the Assiniboines with the Crees of the James Bay area. What developed was a general movement of worn-out trade equipment in the direction of Hudson Bay and an equal and opposite flow of *castor gras* in the direction of the St Lawrence River.

After half a century of this sort of thing, there were several impressive results:

1. The Crees ended up with the bluntest hatchets, the leakiest kettles, and the best beaver country in Eastern Canada.
2. The St Lawrence fur trade was swamped with a supply of *castor gras* of such rare vintage that the hat trade immediately expanded from France into Spain and Portugal and is thought to have had something to do with the wars of the Spanish Succession.
3. The Iroquois decided they preferred wearing warpaint to *castor sec* and declared war on everybody downstream.
4. The Assiniboines moved to Manitoba.
5. Louis XV sent Champlain out to straighten things up.

Samuel Sieur de Champlain (one of the Paris Sieurs) arrived in Canada at a critical phase in the fur trade. Scalps were threatening to replace *castor gras* as the basis for the resource.

The enterprise displayed by the Hurons and Algonquins as middlemen in developing trade with the Iroquois, Assiniboine and Cree tribes of the northern interior had resulted in far too much *castor gras* and not nearly enough *castor sec* for the demands of the beaver hat trade. Accordingly, the Hurons and Algonquins were asked to explain to the Iroquois that the supply of *castor* was "*disproportionné.*" This they could hardly pronounce, let alone explain, but they agreed to try.

The first time they tried, they were accused by the Iroquois, quite understandably, of speaking with forked tongues. The second time we don't know what happened because none of the delegates came back. But from this period onward, there appears to be no record of the Hurons and Algonquins trading anything with the Iroquois except blows from tomahawks, and the St Lawrence fur trade experienced its first decline.

Samuel de Champlain assessed the situation as soon as he arrived in 1603. It would have been difficult not to. "*Disproportionné*" was as good a word for it as any. But since his chief reason for being here was to promote the wearing of beaver hats, it appeared to him elementary to discourage all the scalping that was going on. Accordingly his first step was to call a meeting of the Indians at which it was moved, seconded and unanimously carried that there would be no more scalping of fellow members. Unfortunately, the Iroquois didn't attend this meeting and failed to honour the ruling, claiming that they thought the war was still on and they should have the Services' Vote.

Champlain tried to talk the Iroquois out of this viewpoint, but with no success. When he started to get the "forked tongue" routine, he wisely predicted what was about to happen and declared war first, instead of second. After all, Champlain was a professional explorer and there were a lot of Iroquois between him and Lake Champlain in 1603.

With the outbreak of the Indian Wars, the Iroquois were at first in a bad position. All they had to fight with were the second-hand muskets and hatchets that the wily Hurons and Algonquins had traded them for their clothes. However, help was at hand. Dutch settlements on the Hudson River had developed a fur trade north to the Great Lakes which soon provided the Iroquois with a much needed chain of supply. The appearance of the English (from Boston and the Albany) on Lake Michigan and on Hudson Bay broke the French monopoly on trade goods and fur markets and the Iroquois were able to trade their furs direct for consumer goods. It is significant that the bulk of these consumer goods consisted of muskets, gunpowder, and West Indies rum but since England and France were at war at the time, this was not considered *disproportionné.*

One general disadvantage of the Indian Wars (from the French point of view) was that they failed to produce much *castor gras.* With all this fighting going on, no one had time to wear robes and the market soon became flooded with *castor sec.* The French hat-makers' guild had difficulty in maintaining the previously high quality of its product, but eventually solved its problem by instituting a trade-in system on beaver hats which worked as follows: Pelts were shipped to La Rochelle, where top quality beaver hats were manufactured and sold. After these had been worn for a period by the French, a trade-in allowance was accepted on a new hat.

The trade-in was then packed with a gum, making it hard and short-haired, and sold to Spain. On being traded in again, it was pre-shrunk, altered and sold to Lisbon, where small hats were in style. When the hat was finally worn full of holes by the Portuguese, they got rid of it by trading it for ivory on the African Coast. After this, it was presumably thrown away. But when one realizes that a James Bay beaver skin could conceivably end up in Timbuctoo in this manner, it must be admitted that Canadian fur was, even at that early date, a pretty far-flung trade.

From the English point of view, however, things in the fur-trade were looking up. Tall beaver hats were not the success in England or Russia that they were on the Continent (probably because of the availability of snowballs) but fur garments and felt boots were becoming popular and these could be manufactured from *castor sec*. Since nothing was coming out of the north but *castor sec* and French scalps, anyway, the English were in a good position to trade on Lake Michigan.

When, in 1660, they established a trading base at Green Bay, they got so many pelts from the Iroquois the first spring that they had to institute the Green Bay Packers which in three centuries became a football team. In 1670, they also established trade on the shores of James Bay by instituting the Hudson's Bay Company.

By 1675 the Canadian fur trade scene was fairly distinct. In the north were the English, in the east the French, in the south the English and Dutch. In the middle was the biggest Indian war that anyone had ever seen, blocking, as Champlain put it "Ye expansion of Ye Furr Trade to Ye West."

Why it was thought desirable to expand this state of affairs to "Ye West" is not stated, but it was probably because they didn't want it any more in "Ye East." In any case, the French decided to break through the middle and re-open the St Lawrence trade routes by the establishment of a series of forts to guard them. In 1634 they constructed one at Trois Rivières, to be followed by Forts Richelieu 1642 (at Sorel), Maisonneuve 1642 (Montreal), Chambly 1665 (on the Richelieu River), Cataraqui 1673 (Fort Frontenac at Kingston), Niagara 1678, and Camanistigoyan 1678 (Nipigon). The construction of four barques on Lake Ontario by 1677 and of the galliot *Griffin* at Niagara in 1679, marks the beginning of Great Lakes Navigation and the reimposition of French control on the upper St Lawrence.

In the latter part of the 17th century the French were also successful in recovering much of the Hudson's Bay trade by capturing the English forts of Rupert, Moose,

. . . back at La France
the hat-makers had evolved
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. . . the coureurs de bois were natural candidates for rushing up supplies.

Albany and finally Nelson, on Hudson Bay. By the close of the century, the St Lawrence trade was once more in French hands and the road to the West was open. In the process, however, Indian dependence on French trade had been lost and was never completely recovered.

In 1697 the Treaty of Ryswick ended the war between the French, the English and the Iroquois in Canada and gave the French possession of all the trading posts on Hudson Bay except Fort Albany where the English simply paid no attention to the Treaty. Since the French had burned this one down years before anyway, they didn't really miss it.

Back in Europe, however, the war continued until 1713. It was ended by the Treaty of Utrecht which gave all the trading posts on Hudson Bay to the English. Apparently the only thing these two Treaties agreed about was that they have Dutch names. Fortunately, there were only two of these Dutch treaties, since a third would no doubt have given all the forts on Hudson Bay to the Iroquois.

As it was, there was confusion enough. The Treaty of Utrecht gave Nova Scotia to Britain, Cape Breton to France, recognized British ownership of Newfoundland, and admitted British sovereignty over the Iroquois Indians. The Iroquois, of course, admitted nothing of the sort.

The effect of all this on the French fur trade was to move it westward, the last of the Micmacs having long since taken the last of the beaver from Cape Breton. Simultaneously, the English fur trade, from its bases on Hudson Bay, started pushing westward and the remainder of the eighteenth century was a period of continuous competition for control of the western trade.

Spearheading the French fur trade movement westward were the La Vérendryes, who besides having been granted a monopoly of the trade, were exploring for "ye Western Sea not far beyonde Lake Superior." By the end of their search, which lasted from 1731 until 1743, when the last of the Vérendryes sighted the Rocky Mountains and turned back, they had pretty well established the location of the Western Sea in terms of its distance from Lake Superior; but they did this by the process of elimination rather than by the process of discovery.

A good part of the 12 years taken up in the Vérendryes' search was devoted to the construction of fur-trading forts at strategic positions designed to cut off the trade routes to Hudson Bay, where the rival English were trying to attract Indian trade. Before they had all returned from the West by 1749 they had built Fort Rouge (Winnipeg), Fort la Reine (Portage la Prairie), Fort Dauphin, Fort Maurepas (near Lake Winnipeg), Fort Pascoyac (The Pas), in Manitoba. Forts Pierre and Charles (west of Lake Superior, in Ontario) and Fort a la Corne (which they called Fort St Louis, near Prince Alberta, Saskatchewan) were also Vérendrye forts. The rest of the time was devoted to organizing trade with the natives and, of course, looking for the sea.

The Vérendryes had understandable difficulties in soliciting Indian aid in their inquiries about "the sea." Since none of the Plains Indians had seen a sea, they weren't too sure what was being looked for and in response to descriptions such as "water which no man drinketh," led the explorers to more slough water than sea water. They led the French to a rich fur country, however, and the Vérendryes were quick to realize the advantage of their strategic position in the west. Vérendrye senior thought he had found a new source of fur in the large buffalo herds he encountered and sent a shipment of hides to France at the first opportunity in hopes that they might be of value to the hat trade. The Hatmakers Guild of New Rochelle sternly rejected these

shaggy substitutes for *castor gras*. Apparently France was not yet ready for the beatle wig.

The French were now in position in the west to intercept most of the furs bound for Hudson Bay, but their chain of supply was extended all the way back to Grand Portage at the west end of Lake Superior, which then represented the western fringe of civilization. This was about 700 miles away from, say, Lake Winnipeg, and marked a pretty wide fringe because it was another 700 miles east to Montreal which, to use the term loosely, was the centre of civilization. The chief problem in the expansion of the trade thus became one of logistics. With the Vérendryes spearheading the westward movement, the spear was getting too long to handle.

Happily for the French, they had the *coureurs de bois*, or "runners of the woods," to draw on in this emergency. These were a hardy breed of trappers and woodsmen who having lived along the St Lawrence all through the English-French-Indian wars had developed, through natural selection, a survival characteristic which consisted of moving through the forest at a dead run. With the Vérendryes out west alternately contructing forts and demanding trade goods, the *coureurs de bois* were natural candidates for rushing up the supplies.

Canoes, *coureurs de bois* and cargoes were assembled at the west end of Lake Superior for the journey. Historians list some of the items passing over the Grand Portage in this period and typical cargoes are as follows:

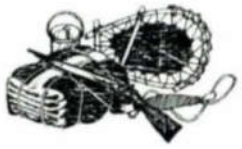
"2 canoes and 16 men with a cargo of 180 gal. rum and brandy, 30 gal. wine, 400 lb. gun powder, 1,000 lb. shot and ball, 12 rifles valued at 600 pounds stirling, 13 boxes, 10 kegs and 7 bags."

"4 canoes with 18 men and cargo of 500 gal. rum, brandy and wine, 1,100 lb. gunpowder, 17 c.w.t. ball and shot, 46 bales, 12 kegs, 17 bags, valued at 1,006 pounds stirling."

"12 canoes with 78 men and a cargo of 100 gal. rum and brandy, 24 kegs of wine, 64 kegs gunpowder, 90 bags shot and ball, 150 rifles, 150 bales drygoods, 12 boxes ironware, 12 nests brass kettles, 100 packages carrot and twist tobacco, 50 kegs hog's lard and tallow, 60 kegs pork, 9 boxes, 8 kegs and 6 bags."

One wonders what the "boxes, kegs and bags," the only unclassified items on all these bills of lading, contained. Probably ice cubes, straws, and mixer. In any case, the *coureurs de bois* in charge of all these trade goodies are described in the literature as being "jovial, carefree and much given to singing" and this appears entirely reasonable. A fur-trader at Fort Rouge in 1739 describes one of their arrivals at that point in his journal: "Ye brigade from Canada arrived this day and all in good cheer. We did heare theyre approach at one leagues distance on ye river."

Glamorous as this trip west may appear, however, it was not all voyaging and singing. There were numerous portages to be made to get around the rapids and since all this cargo had to be back-packed by the otherwise carefree and jovial voyager, there were probably times when the singing languished. A one-man pack was considered to be about 170 lb. in those days of fevered imaginations, and paleontologists are still studying strange tracks in the rock of the Canadian Shield that don't look quite like those of prehistoric reptiles, being too close together. The *coureur de bois* who left these quaint marks of his passing must have wondered, as he staggered along under his load of brass kettles and musket balls, why they persisted in calling him a runner of the woods.



Meanwhile, the English on Hudson Bay were probing westward on the Nelson and Hayes rivers to exploit the same fur resource that the French were after. A brief history of the origin of the Hudson's Bay Company could not, it is felt, confuse the reader any further, so it will be brought in next in order to take care of any possibility the writer may have overlooked up to this point.

Strangely enough, the Hudson's Bay Company owed its inception to two *coureurs de bois*, Groseilliers and Radisson, who had defected to the English after falling out with the French Governor in Canada. Groseilliers had been west to the Great Lakes in 1654-6 and had been largely instrumental in restoring the St Lawrence fur trade by negotiating with the Indians. Meantime his brother-in-law, Radisson, had been gaining varied experience as a captive of the Mohawks. Together in 1659 they set out for the northwest and returned with a great company of Indians, masses of furs, and a good story about the waterway to the Bay. In 1662, following disagreement over trade monopolies with the French, they went to Boston where they interested the English in the Hudson Bay fur trade and in 1665 reached England simultaneously with the Black Death and just ahead of the Fire of London. Charles II, who was ready for anything by this time, received them at court and expressed interest in their proposals for a fur-trading and exploring venture into Hudson Bay. •

Down North on the Mackenzie

BY B. CARMICHAEL SUMNER

The impressions of an American traveller who, with his wife Judy and a friend John Higginson, travelled by boat down the Mackenzie River two years ago. Since then there have been some changes, improved communications, mining development, floods and relocation, and construction of a railway to Great Slave Lake, among them.

THE DAMP WIND blowing off the remaining winter's ice on Great Slave Lake, in Canada's Northwest Territories, added an unwelcome chill to an already discouraging day at the beginning of July. The mud of the town of Hay River, on the south shore of the huge lake, had given us little welcome at the end of a windshield-smashing, headlight-breaking drive from northern Alberta on the Mackenzie Highway, the only all-weather road into the Northwest Territories.

Waiting for our boat to be made ready, we accepted the offer of an insurance salesman to drive with him to Yellowknife, 300 miles away and the largest town (with a population of 3,000) in the Territories.

"This spur of the highway from Hay River to Yellowknife has been open only since 1959," our driver told us. "It has to cross the Mackenzie River, which we'll do now by ferry. In the winter, even the heaviest trucks can drive right across on the ice. But during the more than two months total of freeze-up and break-up, Yellowknife is inaccessible by road."

Yellowknife sits on rock strata known geologically as the Pre-Cambrian Shield. For the road-builder, this signifies a preponderance of rock and a blessed scarcity of mud. For the mining engineer, it means possible deposits of iron, lead, zinc, silver, and that source of innumerable good-luck and hard-luck stories, gold. Gold is the life and breath of Yellowknife, and despite paved streets, modern hotels, and plate glass windows on the Hudson's Bay Store, Yellowknife still has many of the earmarks of the mining boom town.

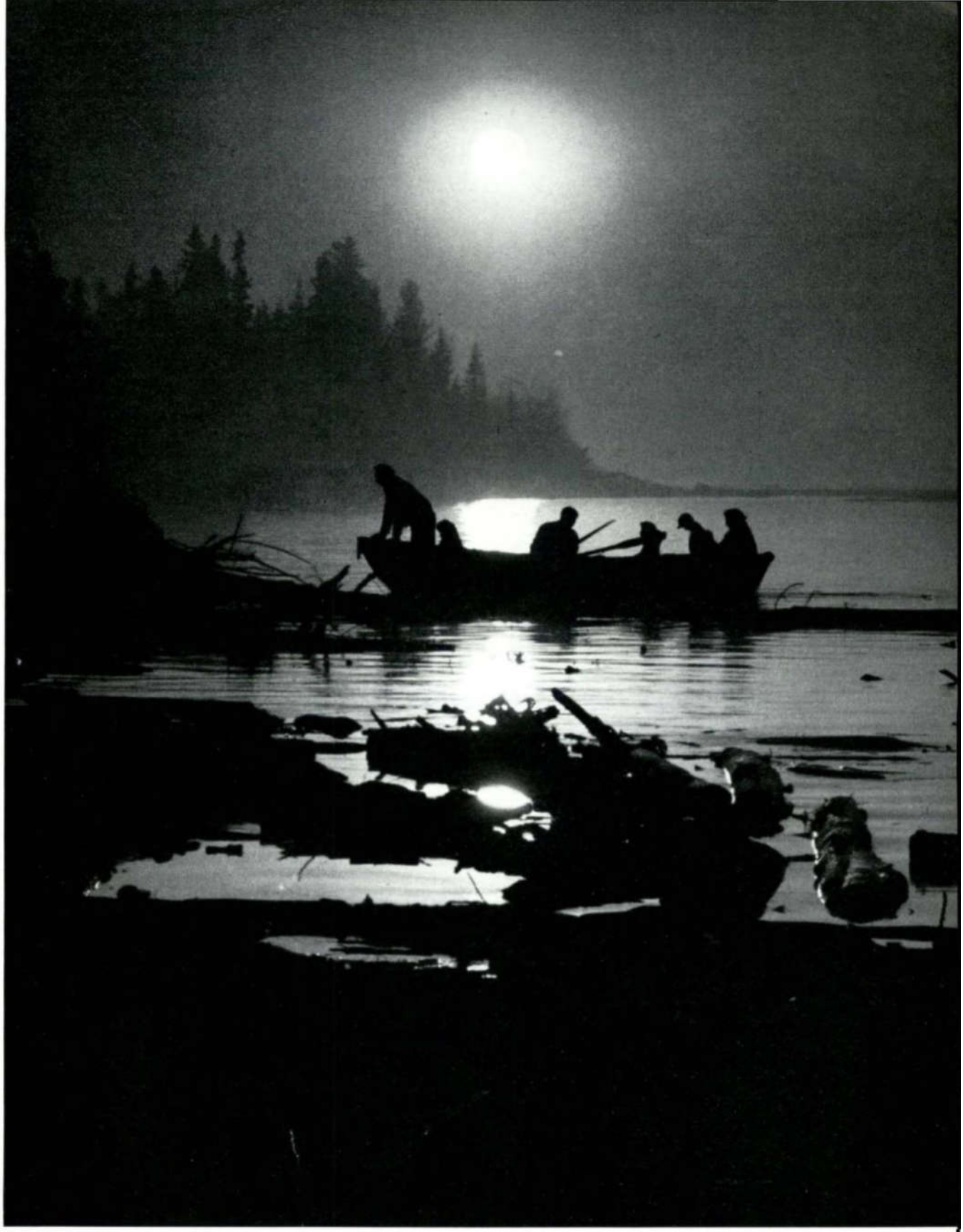
PHOTOGRAPHS NOT CREDITED ARE BY THE AUTHOR.

The Yellowknife mines produce $14,000,000 worth of gold a year, and several nearby mines will soon add to this production. With these new openings and other discoveries, the excitement of gold fever continues.

Miners come into town from the more distant mines every weekend, and it is not unusual for a large bankroll to disappear in two days. The lusty life of the frontier has not disappeared entirely, but it is kept under control by the Mounties who represent law and order to the 23,000 people in the Northwest Territories. We watched two burly miners, causing trouble in a restaurant, when a Mountie walked in. Within the moment, order reigned completely. Due to the respect shown the Royal Canadian Mounted Police, a constable can usually make an unruly citizen act like a choir boy merely by his appearance.

Yellowknife serves as judicial capital for the Northwest Territories, and Judge Robert Sissons, head of the system of justice for the entire Territories, flies 25,000 miles a year to bring justice to every man's door, or igloo, as the case may be. The Judge has a collection of Eskimo soapstone carvings depicting various cases over which he has presided. According to a colleague, "The Judge has the only neolithic law library in existence!"

For those who think that a well-run system of law might inhibit the natural challenge of the frontier, Yellowknife has a golf course which is as much fun as any good bar room brawl. The only course in the world where one can play 24 hours a day, in mid-summer, it has never had any green on its greens. The entire course



Indians on Great Slave Lake near Hay River. EGON BORK

Window-shopping at Yellowknife.

On the Yellowknife golf course at 11 p.m.

Dock at Hay River with the author's boat offshore.

is a combination sand trap and flattened-out-quarry. The tees are often wooden platforms built on rock and the well-cared-for greens are the finest tar sands available. Major hazards include the ravens, which during nesting season seem unwilling to distinguish golf balls from their own eggs, and constantly fly off with the evidence of a good drive down the fairway. According to ground rules, this results in no loss of strokes, only the loss of the ball.

Southern Canadian life, with its amenities and complexities, has been so well established in Yellowknife in the last two decades that it was hard to find much evidence of the native Indian culture which had preceded it for centuries. We became most aware of this upon leaving Yellowknife on the late evening bus which runs to Hay River. An Indian, dressed in a neat suit and wearing sunglasses despite the semi-darkness of the northern twilight, sat down across the aisle from us. Judy turned to him and asked him his destination.

"I'm going to see Hay River," he said, "just like a tourist."

The Indian would be one of few tourists in Hay River, which looks more like a frontier town than Yellowknife, if only because of its dirt streets and board sidewalks. Yet it too has many aspects of southern life: a new Kiwanis Club, two new motels, the only frozen custard stand in the North, and a public trampoline.

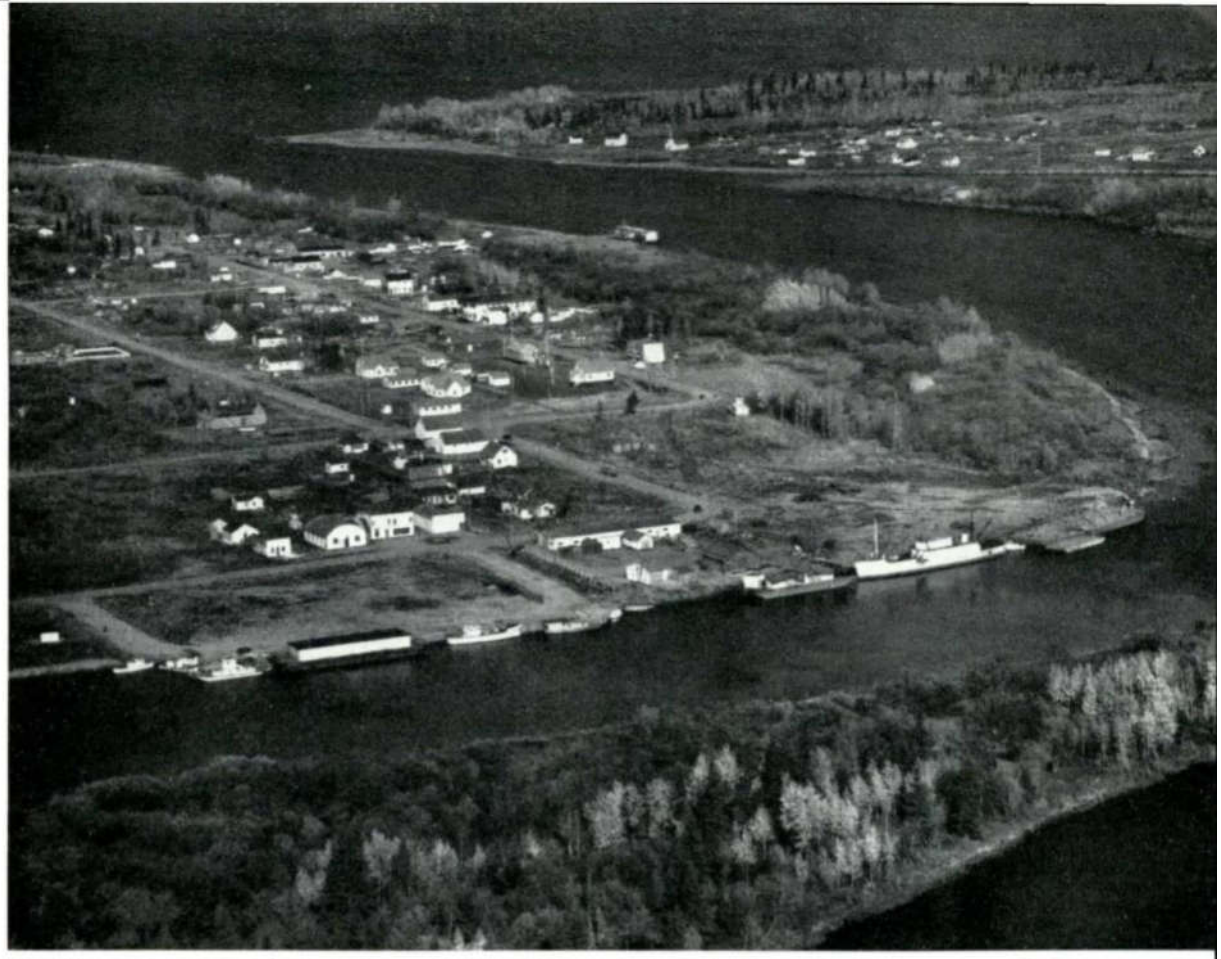
Our boat, a 19-foot skiff with a 10 horsepower motor, was ready and freshly painted. "She'll be plenty sturdy for your needs," commented the fishery owner who was selling it to us. "My men use this type of boat for lake fishing in the summer. There's no fish smell about your boat now, though, because it has been stored all winter."

"Then you fish only during the short summer?" I asked.

"Lord, no!" he fired back. "As soon as the lake is frozen, we get out our fleet of bombardiers, or snow buggies, and travel hundreds of miles over the lake chopping holes in the ice and setting nets. Over 2,000,000 pounds of fish are taken by Hay River fishermen each year to supply markets as far east as New York. Since the lamprey eel depleted the lake trout in the Great Lakes, we can sell all we catch."

Today Hay River depends upon fishing. However, the expected completion of a railroad to new lead and zinc mines east of Hay River in 1965 will effect great changes to this town and to the entire North.

To some, "progress" can't come too soon; to others, it is too apparent already. Ian McGhee, manager of the



Hay River before the bad flood of 1963, with Great Slave Lake in the background. G. HUNTER

Hudson's Bay Store in Hay River, mourned: "When I first came to the North fourteen years ago, it was different. For five years I enjoyed myself. Then it got civilized." For people like Ian, there is always the comforting thought that there is still plenty of country to the north, with the Arctic Ocean a thousand miles away.

We left Hay River, bound for the Mackenzie and the Arctic Coast, with dusk not yet beginning at 10.30 "at night". Thirty miles of Great Slave Lake lay ahead of us and the sun was well above the horizon again, at 3 a.m., when we located the outlet to the lake through a maze of islands and were on our way down river.

The Mackenzie is the only outlet to the sea for Great Bear and Great Slave, North America's fourth and fifth largest lakes. The whole Mackenzie River system, including the waters of the Peace, the Athabasca and Slave Rivers which flow into Great Slave Lake, is second in North America only to the Mississippi system. The Mackenzie is really born from the excess waters of Great Slave Lake pushing out of its southwestern corner. By the time it reaches the sea, 1100 miles away, the river has fallen only 500 feet. Yet even with this small drop and an average width of well over half a mile, the Mackenzie flows along at four miles an hour.

As we left Great Slave, our heads became nuclei for swarming spheres of insects, which appear every year the moment the first thaw begins. In the eternal minute until we located our head-nets our tormentors rapidly probed for Northwest Passages connecting our eyes, ears, noses, and mouths. After running this gauntlet for about two miles, we emerged apparently initiated, never again to be attacked in such great force by the gnats, mosquitoes, and flies.

We were eating our breakfast when we rounded a bend and came upon the first of the river tugs we were to see, pushing heavily-loaded barges downstream. The tug belonged to the Northern Transportation Company, whose manager we had met while in Edmonton. We approached the side of the tug, staying clear of the wash created by the churning propellers, as a man came out of the wheel house and bellowed, "Come on aboard!". Securing our boat we scrambled aboard the moving tug.

"All the tug captains have received word that you're on the river, and we're to keep an eye out for you," the good-natured skipper told us as he handed round cups of steaming coffee. It was good to know that if we were ever in trouble, a big puffing guardian angel might be around the next bend.

The tug was pushing nine barges, loaded with everything from household supplies and canned food for the river settlements to Caterpillar tractors and heavy drilling equipment for oil exploration crews with bases along the Mackenzie. "We have to work every minute that the river is free of ice," Captain Sweinson told us, "to move the backlog of freight which accumulates the rest of the year."

We reached the first large settlement on the Mackenzie 250 miles from Hay River. Fort Simpson, with a population of 1,000, greeted us with more of the contrasts of the North. We were entirely unprepared for the 90° temperatures which we encountered, although we would have found Simpson's last December average temperature of −23° F. even more uncomfortable. Simpson is the location of the main government experimental farm along the river and we were overwhelmed to find green lawns requiring power mowers, enormous flower beds, and grain and vegetable crops thriving.

"The answer is the long hours of daylight in summer, even though summer is only six weeks long," Andy Russell, manager of the experimental farm, explained. "If we published the results we get here, I'm afraid we'd have a stampede of farmers. Too many would be unprepared for the difficulty of clearing the land and the problems of northern life in general. But with science developing new varieties of plants which take less time to mature, agriculture on a commercial basis might well become possible in the North, especially stimulated by necessity through future population growth."

Fort Simpson itself still has dirt streets and a log cabin post office, but a new million-dollar boarding school for children from small river settlements and other modern buildings indicate changes to come.

Some problems will no doubt always remain for those in such isolated settlements, however. Lynn Russell, Andy's wife, asked us to stay for a meal. "We have plenty of eggs from our hens," she mentioned. "How about an omelette for supper?" Fresh eggs are available in most river settlements only when flown in from the outside. "But you'll have to take your choice between spinach and beans," Lynn went on. "Our six-month shipment of canned goods has just come in and we haven't unpacked it, and our own vegetables aren't ripe yet. When we first came here, we brought 1,400 pounds of canned goods in by boat during the summer, because there was no road to the outside. Now there is a winter road connecting to the Mackenzie Highway, allowing goods to be brought in by convoys of trucks when the ground is frozen."

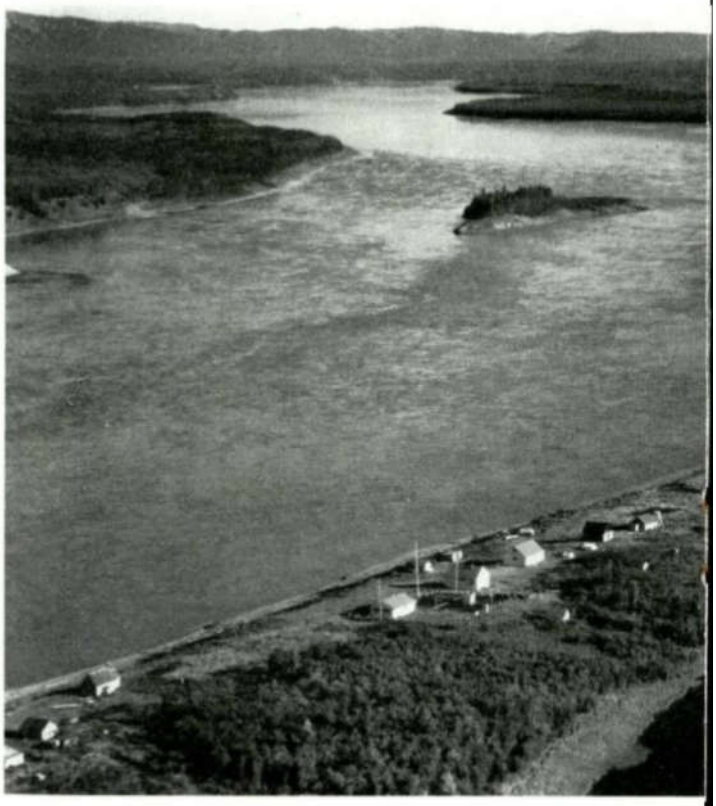
At Fort Simpson, the great muddy Liard River joins with the clear waters of the Mackenzie. At first the two rivers refuse to blend, and they flow side by side for nearly 100 miles before the Mackenzie accepts the café-au-lait colouring of its partner. We stayed on the clear side of the river as long as it was distinguishable, maintaining our preference for seeing the bottom of a cup as we drank water out of it. Finally, when only muddy water was available, we just closed our eyes as we drank it.

We had been keeping our eyes open for game, but had seen none so far. I was sure that the river area was hunted by Indians from the settlements and small camps which we passed, but we hoped that luck would at least give us a glimpse of some wild animals.

Below: The settlement of Wrigley on the bank of the Mackenzie.

Opposite: the Experimental Farm at Fort Simpson.

Varied transportation: Barges in the mouth of the Great Bear River at Fort Norman and, on the Mackenzie, the Sumners' boat with tarpaulin sail set on a warm breezy day; the helicopter is at Wrigley.



G. HUNTER

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Two days out of Simpson, at dusk, our hopes of seeing game were fulfilled for the first time. Our tents had been pitched for the night on the sloping river bank and we sat round a camp fire, watching logs sweep past us in the river, their stumps reaching high out of the water. Suddenly one stump close to shore snorted in alarm. The "stump" was a swimming moose, his large antlers sticking out of the water. Three foxes peered from behind bushes and logs, and one came right into the camp. For half an hour we watched, enchanted, as this blue fox played within feet of our tents, seemingly ignoring us as he chased and caught a lemming and gaily tossed it into the air.

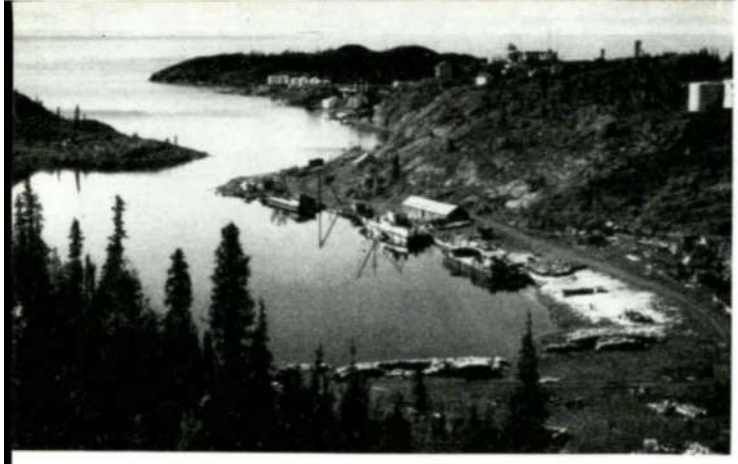
We had a glimpse of what it must have been like in the past when we reached Fort Wrigley, 250 miles down river from Simpson. The Bay manager and his wife were the only white population, as was true in a great many northern settlements fifty years ago.

While we were there, Fort Wrigley was comparatively full of people, with a helicopter crew and two geologists using it as a base camp for six weeks in order to make an oil survey of the area. The 'copter was ignored by the Indians, who had become fully accustomed to this aspect of the modern world, strange as it looked.

We could sense an underlying feeling of urgency in a sudden burst of activity, as several float planes came in within a few hours, carrying crews out of Wrigley in order to fight several of five forest fires raging in the dry timber back from the river. Reforesting a burnt-over area could take more than a century with such a short growing season. Even though the virgin forests have hardly been touched for their wood supplies, the government is wisely anxious to preserve the future potential of the area.

After leaving Wrigley, running aground, backing off again, and having some trouble with a violent squall that threatened to capsize us, we finally pulled into the sheltered mouth of a quiet stream.

The many small streams that flow into the Mackenzie are well stocked with great northern pike, and it takes but little skill to pull in the big ones which elsewhere get away. In a matter of minutes we had caught and released four pike, each weighing over 5 pounds. For eating we only wanted the big ones. A poor cast put my line over a bush, leaving the glittering spoon dangling six inches above the water. John laughed. Judy laughed. I gnashed my teeth as the biggest pike we had ever seen jumped out of the water at the lure—and missed it. John didn't hesitate. A quick cast with his spinning rod put his lure where the pike had hit the water, and the greedy fish took it immediately. In ten minutes the 15-pound fish was in the boat. Supper couldn't have been more delicious.



Desolate Port Radium on Great Bear Lake.

The chief of the fish camp above Fort Good Hope.

Interest in the gasoline powered washing machine at Fort Good Hope.

The village of Arctic Red River.

G. HUNTER

G. HUNTER

Threatening squalls and spitting rain pursued us into Fort Norman the next day. Tying our boat to a floating sea-plane dock, we climbed the muddy bank to the Hudson's Bay compound. In the store we found the manager, Ben Hunter, a Scot who had traded the lure of the sea in the Merchant Marine for the call of the wilderness in the North. He asked us to his house for a cup of tea.

Turning to John and me, he added, "You can use my razor too, if you like," eyeing our three-week growth of beard. Similar offers had been made previously, enough for us to realize that beards were not considered civilized in the new North.

Cold and bedraggled, but determined to remain bushy, we followed Ben into a now-familiar red-roofed white Bay house. His wife, Mary, in the midst of a home permanent being given by a neighbour, called, "Tea in a minute". We sank gratefully into comfortable arm chairs, relaxing to the stirring music of the "1812 Overture" playing on Ben's stereo. Tea was followed by most welcome hot baths and an elegant dinner.

Fort Norman is at the junction of the Mackenzie and the Great Bear Rivers. Even though the latter is the only outlet for enormous Great Bear Lake, the river is shallow, though swift, and seldom over 100 yards wide. Our boat couldn't make much headway upstream against its current, but a tug was on its way up, pushing a barge with supplies for Fort Franklin. We were able to hitch a ride with the tug, which allowed us a glimpse of another important aspect of river life.

Captain Mike Arfinson of the tug *Watson Lake* had been on the Great Bear River since 1933, and knew it better than any other man. Familiarity with every bend of the river was essential. "With a new bend about every 200 yards" he explained "you have to know which side of the river the channel is on. This tug draws only 24 inches, but the river channel, narrow as it is, occasionally shallows to 27 inches. If you don't know where you are every foot of the way, you run aground."

This we proved when we later came down the river in our own boat, which had been towed up by the tug. Though we drew only four inches, we managed to run aground every other bend.

Captain Arfinson explained some other problems of the Great Bear River. "There's a set of rapids half-way up, 35 miles from either end, where the river drops 110 feet in nine miles. We used to run a little river boat with only a 7-inch draft right up the rapids. That way we could only carry a load of five tons. Now we have a truck portage around the rapids, and use another tug and other barges on the far side.

"It was the discovery of uranium across Great Bear Lake at Port Radium which made it worth while to build the portage. We were hauling 12,000 tons of ore a summer at the peak of production. There were periods of months when we were going day and night, stopping the engines in the tugs only long enough to change the oil. Things have quieted down now that the mine is not producing."

I was able to fly in to the eastern shores of Great Bear Lake to see what had been a real boom town several times over. It was now deserted but for two caretakers.

With Port Radium closed down after the uranium boom ended in 1960 the only activity on the fourth largest lake in North America was found at two privately-owned fish camps. Canadian and American sportsmen were flown in for a week at a time for some of the most incredible fishing I have ever seen: lake trout under 20 pounds were thrown back, and fish of 40 pounds and more were not uncommon. Now that the camps have been firmly established on the frozen ground, the main problem is when the ice will leave the lake. When I was there it was out in mid-July, but it has been known to remain until early August.

Back on the Mackenzie, we found at Norman Wells one aspect of the mineral life of the North which makes further development of the entire area more feasible. Oil was discovered here in 1920, and being right on the river itself, it could be transported with little difficulty. During the war a pipeline was run from the Mackenzie across the mountains of the Yukon to Alaska, and thousands of U.S. and Canadian soldiers spent years at the base across the river from the town of Norman Wells, now shrunk to 300 residents. With curtailed production today, the Wells provides much of the fuel and heat for the Mackenzie district, making oil prices on the Arctic coast little higher than those in southern Canada. The town sees continuous activity in summer, as barges are loaded with fuel for settlements up and down the river.

Our next river stop, 150 miles beyond Norman Wells, and only a few miles south of the Arctic Circle, was Fort Good Hope. A more impressive approach could hardly be imagined than the five miles along the Mackenzie just before one reaches the settlement. For these five miles, the mighty river funnels between the Ramparts, 100-foot cliffs less than a quarter-mile apart.*

At low water, late in the summer, the powerful tugs even without barges have difficulty pushing upstream through the current, and at break-up time, when all of the ice from 500 miles of the upper river and Great Slave Lake pushes down, the Ramparts act as a huge bottleneck. The ice has nowhere to go but up, and local Indians tell of years when the ice has risen to the top of the cliffs. This seemed quite possible, as we had learnt that ice, 45 feet above normal level, had taken the caps off several oil wells in May at Norman Wells where the river is over a mile wide.

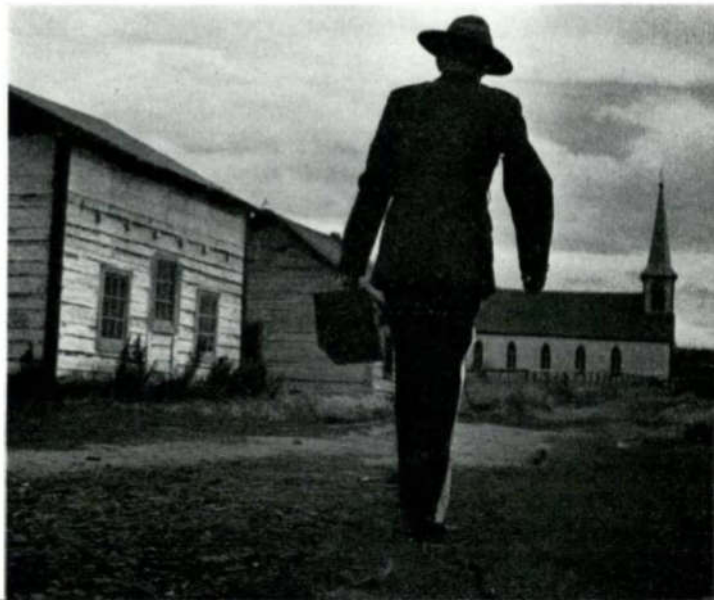
The R.C.M. policeman at Fort Good Hope, Constable Bud Ennis, took us with him when he paid a visit to an Indian fish camp above the Ramparts. "In the summer," he explained, "the Indians go to various sites along the river to catch fish, which they dry for use as food for their dog-teams during the winter. Actually, the Bay buys the dried fish and sells it back for the same price, in order to get money into circulation in the summer when there is no trapping to provide other income."

The industry of the people in the fish camp impressed us, because we had seen many people on the river who seemed to be more willing to take advantage of government welfare, rather than follow their traditional way of life.

Constable Ennis took us to the fish camp of his Special Constable, George Codzi. "Every police post has a Special Constable, a native, who knows the area and goes out on patrol with the Mounties. George stays in this camp for the summer drying fish which will feed our sled dogs for the rest of the year."

The Codzi family tent had a fragrant floor of spruce branches, which were carefully changed every two days to keep down the fire hazard. Christine Codzi was sewing some moccasins with sinew for her husband, and we took several pictures of her. At that, George brought out his Polaroid camera and took several pictures of us!

Good Hope, with a church about a hundred years old, had some of the latest innovations of modern science. The entire population lined up to receive oral polio vaccine, and after this interruption, some of the women returned to doing the washing in the gasoline powered washing machine outside one of the log cabins. "It took some time for them to get used to the plate glass windows on the Hudson's Bay store, though," laughed Bud.



The R.C.M.P. constable sets out on a call where medical aid may be needed at Fort Good Hope.
G. HUNTER

*See cover, *The Beaver*, Spring 1964.

G. HUNTER

Inuvik, showing the domed Roman Catholic church and in foreground a utilidor. Right: Children awaiting their parents outside the Anglican cathedral at Aklavik.

We crossed the Arctic Circle several hours after leaving Fort Good Hope, dressed only in bathing suits and thoroughly enjoying balmy temperatures. It had been 91° several days earlier in Good Hope, which hardly seemed 'arctic'.

A brief stop at the next settlement, Arctic Red River, provided us with an absolute necessity: a good chart of the delta, only a few miles ahead of us. Jovial Father LeVecque entertained the settlement by broadcasting radio programs through the amplifier on top of the church. To the rhythms of the latest twist records, he explained the delta chart he gave us. "Without this, you'd be going into the labyrinth without the proverbial ball of string. There are thousands of little channels, and you can't climb a tree to see where you are: there is nothing but scrub willows and a few spruce, and the delta is over 100 miles wide at the mouth."

Feeling somewhat more confident with chart in hand, we left Arctic Red River and entered the labyrinth.

The next day, after passing several Indian cabins, we suddenly rounded a last turn and passed a speed boat towing a water skier. With that, we knew we had arrived in Inuvik, the administrative, medical, and educational centre of the Arctic Northwest. The entire town was officially dedicated in 1961, construction having been mostly completed in the preceding six years.

We found Inuvik to have all of the facilities of a southern town, including a hospital, radio station, movie house, and a bowling alley under construction. There was even a very welcome do-it-yourself laundry.

A rehabilitation centre helps Eskimos and Indians, unable to carry on traditional patterns of life after moving to the white man's settlement, to learn new skills. For young people, a boarding school provides a modern education, with some Eskimo children being flown in from settlements as far as 3,000 miles to the east. When school is in session in Inuvik, the 450 students bring the town population to 2,100.

To us, the town looked like a toy village, sporting among other gaily painted buildings one in baby blue and pink, the headquarters of the R.C.M.P. All buildings sit firmly on stilts, due to the presence of permafrost less than a foot below the ground. Houses built right on the ground, despite insulation, lose enough heat to cause the permafrost to melt, and the houses soon shift as the ground sinks, causing great splits in the walls and floors. The buildings are connected to the main power plant by "utilidors", box-like insulated tubes on pilings three feet above the ground that carry power, heat, sewers, and water.

These southern luxuries created strange problems. We were told: "If you live near the power plant, the only kind of water you can get is literally steaming. When you draw a bath, it has to sit for half an hour before you can even get in it! Unless you chill the water before brushing your teeth, plastic toothbrushes don't last long. You wouldn't know what the North was like if you lived only in Inuvik. That's why you ought to pay a visit across the delta to Aklavik. It was supposed to be a ghost town by now. The government decided to move everybody to another location because it appeared that the land on which Aklavik was built was settling into the delta silt. Inuvik was picked as the site because of its firmer foundations and greater safety from spring floods and ice jams. However, after the Indians and Eskimos who had moved to the east side of the delta to build Inuvik finally finished work, many of them moved back—so Aklavik is very much alive."

Again armed with our precious delta chart, we threaded our way through 70 miles of channels towards Aklavik. Countless flocks of young ducks, their wings too bare of feathers to fly, scattered over the water at our approach.

Aklavik, though alive, seemed sleeping when we arrived. Dust rose from the streets with each footstep of those few people we found walking around. This was clearly a town of true Northerners: Indians, Eskimos, and those whites who had chosen the North because they liked the way of life and disliked civilization. The Mackenzie delta is the best area for muskrat trapping in the world, and Inuvik is too far from the trapping grounds. Therefore, those who continue in the old ways still live in Aklavik which, we were told, is more active in winter when people are working the trap lines. The school motto seemed to sum up the town which government planning could not eliminate: "Never Say Die".

From Aklavik, we continued our journey down North to the Beaufort Sea. The trees along the banks thinned out until only scrub brush was left as we passed the northernmost limits of the tree line. Then we were out on the sea itself for an eighteen-mile run to our final destination. This Eskimo settlement, Tuktoyaktuk, is on a point of land east of the river. Known simply as "Tuk", it is also the site of one of the D.E.W. line bases.

One again, we encountered the old and new, side by side. Snug log cabins, built with wood that has floated down the Mackenzie, dot the barren ground; but always visible, from any spot in the settlement, is the huge radar tower of the D.E.W. line site. Because of the influence of the base, the Eskimos here all speak English and have adopted many southern tastes. Yet whaling and fishing in the old manner continue. We watched an Eskimo family cut up two small Beluga whales which they had just killed, slicing off the blubber and meat into even chunks. I asked one man how whale tasted, since I understood it was a great delicacy. "Oh, we don't eat it," he said. "We give it to the dogs!"

This meat, and all fish caught, would be stored during the six-week summer in an underground ice house, dug into the permafrost. "We just throw the fish down there and let them freeze," the Eskimos explained. "Much simpler than drying it."

All the Eskimo women were dressed in the Western Arctic manner, wearing long dresses with wolf and wolverine fur ruffs. Most make and sell skin boots and fur mitts, but now some of the leather for these items is purchased at the Bay, already tanned. One woman told Judy: "Almost no one chews the leather any more to make it soft—too many of us have false teeth!"

We were shivering in our sleeping bags the last nights we spent at Tuk. The wind was coming out of the north, bringing winter with it, although it was still mid-August. It was time for us to go. Having come in the old way, more than a thousand miles down the river route, we would go out the modern way, flying. ◆

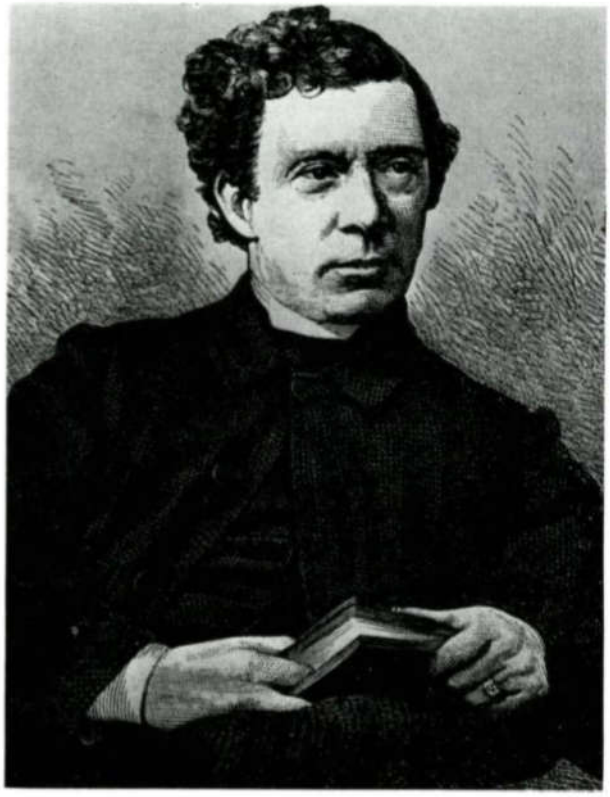
The Delta, with Aklavik at centre. G. HUNTER

WILLIAM WEST KIRKBY

First Anglican Missionary to the Loucheux

BY THOMAS C. B. BOON

Archivist to the Ecclesiastical Province of Rupert's Land



WHEN DAVID ANDERSON, first Bishop of Rupert's Land left the Red River Settlement and the territories of the Hudson's Bay Company on 31 May 1864, to return to England, he must have taken the road to St. Paul, Minnesota, with some feeling of accomplishment. He had come to the diocese fifteen years before by sailing ship to York Factory, then canoe and York boat to the Red River Settlement; he was leaving by road and railway to cross the Atlantic by steamship, so far had civilization advanced during his episcopate. The five clergy who had welcomed him in 1849 had increased to twenty-two; the four churches in the immediate neighbourhood (then organized as the district of Assiniboia) now numbered ten, the three distant missions increased to fifteen. The great desire of the Church Missionary Society that the country should have an indigenous ministry had been implemented, for there were now four native and four 'country-born' clergy among those he had ordained. The Bible, Book of Common Prayer and many hymns had been translated into the native languages through the encouragement he had given to such work; and, wherever possible, the level of education had been raised through his fostering care in the establishment of schools.

Early in his episcopate David Anderson had extended the work of the Anglican Church a thousand miles to the east, for in 1851 he had re-opened the old Wesleyan Methodist mission at Moose Factory on James Bay; then, in 1858, the way was opened to the Athabasca district two thousand miles away in the far northwest, and now in 1864 there were missionaries at Fort Simpson on the Mackenzie River and at Fort Yukon, where the Porcupine joins the great Alaskan river from which the fort took its name. It is with William West Kirkby, the first missionary in the subarctic, that this article is chiefly concerned, though it must be added that David Anderson was also responsible for the dispatch of James Hunter, Robert McDonald and William Carpenter Bompas, the latter being the man who joined Kirkby at Fort Simpson on the morning of Christmas Day, 1865, after a journey

which is an epic in missionary travel, for it was Bompas who answered Bishop Anderson's appeal in St. Bride's Church, Fleet Street, London, on the 1st of May that year, for some one to replace the ailing Robert McDonald who then was at Fort Yukon.

Sarah Tucker, in her little book *The Rainbow in the North* (the first attempt towards a coherent story of the work of the Church Missionary Society in Northwest America) relates that in 1848 the missionary at Cumberland, by which she means The Pas (Rev. James Hunter), received a message from a chief named Tripe de Roche (Rockweed) in the Athabascan country said to be a thousand miles from Lac la Ronge, earnestly requesting a Christian teacher, but that there were no means of complying with the request. Mr Hunter had neither a man he could send, nor the resources necessary to get one there; he was busy building the first Christ Church at The Pas, in maintaining the work in the Cumberland House district and at Lac la Ronge three hundred miles away, in trying to master the Cree language so that he could get on with his translational work, besides caring for his little son, Henry, his wife Ann having died the previous November. Ten years later, when he was Archdeacon of Cumberland and incumbent of St Andrew's, Red River, James Hunter seems to have begun to plan to go to the Mackenzie River himself. The preliminary arrangements appear to have been conducted informally, but the Church Missionary Society in London approved. Bishop Anderson granted him leave of absence for the necessary time, and permission was sought from Sir George Simpson for the Archdeacon to join the Athabasca brigade that summer. There was some delay in this being received, and the Corresponding Committee of the Society at Red River expressed its annoyance in (for them) rather warm terms when it met on 26 May 1858, though the unnamed "Gentleman in charge at Red River" was exonerated from any personal responsibility when he refused to let the Archdeacon start. However, the matter got straightened out, for the next thing in the record is a long letter from Mr Hunter to the Society, written from "Portage la Loche, Lat. 56 N., Long. 109" on July 31st, where the brigade had been for five days. He was then 1,500 miles on his journey and fifty days from Red River. The latter part of the journey had been miserable, sitting sixteen to eighteen hours a day in an open boat under pouring rain, much bothered with mosquitoes and sand flies, with forty-six portages so far, some three or four daily on the English River. But from there the brigade would go down the current rapidly. He had discovered the gentlemen of the district were anxious, even zealous, for the establishment of missions, but recommended that two married missionaries be sent: "Young men with good health and active habits, and having an aptitude for acquiring languages." The Archdeacon himself would visit Fort Liard before winter, perhaps Fort Halkett if he could; in the spring he hoped to go down the Mackenzie to Fort Norman and Fort Good Hope, some five hundred miles farther, and return in time to come back with the brigade in the early summer.

The generous co-operation Archdeacon Hunter received from those stationed at the H B C Posts is indicated by a page amongst his papers in the Archives of the Church Missionary Society in London: an unsigned document (but obviously in his writing) dated August 1858, headed "List of subscriptions towards the erection of a church at Fort Simpson, Mackenzie River." This names: The Bishop of Rupert's Land 10; Jas. Anderson, Chief Factor 5; Bernard R. Ross, Chief Factor 50; Mr A. McKenzie and family, Clerk H B C 14; Mr. Lucas Hardisty, Chief Factor 30; Mr J. Lockhart, Clerk 10; Mr L. Clarke Junior and Family, Clerk 10; Mr Charles P. Gunder do 5; Mr Nicol Taylor, Postmaster 10; John Robertson 1; Mr Jas. Pruden 2; Mr Jas. V. Dunlop 5; Andrew Flett 2; Jas. Flett, Peel's River 1; Robert Norm 2; Thos. Leask 1; Alex Christie Jun. Esq., Chief Factor 20; Mr T. Swanston 2; Matthias Enezson 1-10; Mr John Reed 6; R. Campbell, Esq., Chief Factor 30; R. Ross, Esq. 10; D. Finlayson, Esq., Chief Factor 20; Total £260-10-0.

Minute books are silent, correspondence lacking, but evidently Archdeacon Hunter must have written to Bishop Anderson, for the diary of Samuel Taylor of St Clements on the Red River contains the entry "Rev. Mr Kirkby left for the Mackenzie River 10th June." With him went his wife, Eleanor, and their two small children, Mary Ann, just over two and Christopher who was barely six months old in 1859. Fort Simpson, then the chief trading post of the Hudson's Bay Company, was to be the centre of the work of the Church on the Mackenzie River for more than fifty years. There, about 1868, Kirkby built St David's, "a little gem of a church."

William West Kirkby was born at Uffington, near Stamford in Lincolnshire, in 1828; home circumstances denied him opportunity for much education, and he had to go out to work at an early age. When, in 1850, he applied to the Church Missionary Society to be trained for the mission field, one of his sponsors, the Rev. C. C. Layard of Mayfield vicarage near Ashbourne in Derbyshire, said that he had known Mr Kirkby since infancy, and that he was a precocious boy and ambitious for his own betterment. After outlining the details of Kirkby's

Old Anglican church at Fort Simpson NATIONAL MUSEUM

previous employment, Mr Layard said that he had employed him for about a year as a master at the Mayfield school, and had found him most zealous and active . . . working very hard to improve himself. He added in a later letter that he thought the young man had decided natural qualifications for a missionary schoolmaster. This view was supported by the Rev. E. Aubrey, who interviewed him on behalf of the Society, and so the Society sent him to the Metropolitan Training College at Highbury. In 1852, upon the advice of the Rev. W. Ryan, the Principal of this institution, the Church Missionary Society's Committee resolved "That Mr Kirkby be appointed a schoolmaster at Grand Rapids, N.W. America, with a view to making that school a Training School for the mission." Kirkby arrived at the Grand Rapids of the Red River (better known since 1849 at St Andrew's), early in October; he found the Rev. Charles Hillyer (who had come out the year before) in charge due to the absence of the Rev. Robert James the incumbent, nominally on furlough, and also the newly ordained Thomas Cochrane teaching at the Bishop's St John's Collegiate School, with whom later he made some missionary journeys on to the Portage plains. Later Kirkby's career was probably much influenced by Archdeacon Hunter who took charge of St Andrew's in 1855.

Kirkby was ordained deacon by Bishop Anderson at the end of December 1854, and priest early in 1856. His first efforts at Fort Simpson were, no doubt, to get acquainted with the language spoken there. In 1862 a collection of hymns and prayers in Slavey which had been prepared by him was printed in New York. He then turned his attention to more distant places, for Bishop Anderson had expressed a wish that he should do this as early as possible; he determined, therefore, to visit the Yukon. Actually, Kirkby went to Fort Yukon twice, in 1861 and 1862. His own letters to the Society make this clear, but in publishing extracts from his reports in London, parts from each report were printed at the same time, and in such a way as to give the impression that only one journey had been made. However, after his first journey, Kirkby also sent an account of his experiences to *The Nor'-Wester* (the first newspaper published in the Red River Settlement), which appeared on 5 March 1862; this account was sent to the Smithsonian Institution in Washington, D.C. by Donald Gunn, the Institution's Red River correspondent, and also "furnished to the Institute of Rupert's Land" by the Editors in the form of a special supplement, a few copies of which still exist. From the one in the Archives of the Ecclesiastical Province of Rupert's Land some of the following passages have been extracted.

In the spring of 1861 Kirkby made what he calls a successful trip on snowshoes to "Fort des Liards," from which place he got back to Fort Simpson on May 24th: "I left home on 29th of May in a canoe paddled by a couple of Indians belonging to my mission here. We followed the ice down the noble Mackenzie, staying awhile with Indians wherever we met them; and remained three or four days at each of the Forts along the route. On 11th June I left the zone in which my life had hitherto been passed, and entered the less genial *arctic* one. . . . The immense masses of ice piled on each side of the river sufficiently cooled the atmosphere as to make travelling enjoyable; while the sun shed upon us the comfort of light nearly the whole twenty-four hours. As we advanced further northward he did not leave us at all. Frequently I saw him described a complete circle in the heavens.

"Between Point Separation and Peel's River, we met several parties of Esquimaux . . . and very glad were we

to escape out of their hands without loss or injury. They are a fine looking race of people . . . I imagine them to be much more intelligent than the Indians . . . a girl, who was brought up from the Coast, little more than three years ago . . . now speaks and reads the English Language with considerable accuracy . . . The Indians are much afraid of them—and so afraid of my safety were two different parties that I saw on my way down, that a man from each of them, who could speak a little Eskimos, volunteered to accompany me without fee or reward—to Fort Simpson. He had come up in charge of the Youcan (boats) and at once kindly granted me a passage down with him. I had fortunately a bundle of Canadian papers in my carpet-bag, some of them containing some speeches on educational subjects by his venerable grandfather, the Bishop of Toronto [John Strachan]. Five days of drifting and rowing down the rapid current of the Porcupine River brought us to its confluence with the Youcan, on the banks of which about three miles above the junction the Fort is placed. My friend Mr Lockhart was

Fort Yukon in 1867, from a water-colour by Frederick Whymper. H B C COLLECTION

and invaluable did I find their services. Poor fellows they will never see this; but I cannot refrain from paying them here, my tribute of gratitude and thanks.

"At Peel's River I met with a large number of Loucheux Indians, all of whom received me most kindly . . . I left my canoe, and Indians as well as those who had accompanied me, at the Fort; and taking two others who knew the way, walked over the Rocky mountains to Lapierres House. This part of the journey fatigued me exceedingly, not so much from the distance (which was only from 75 to 100 miles) as from the badness of the walking, intense heat of the sun—and myriads of the most voracious mosquitoes that I have ever met with in the country. . . . There were several rivers to ford . . . . Fortunately they were neither very deep nor wide, or my altitude and strength would have been serious impediments to my getting over them." According to his contemporaries, Mr Kirkby was quite a small man.

"At Lapierre's House I was delighted to meet Mr. Jones who was my companion on travel from Red River in charge, and all who knew the kindness of his heart, need not to be told of the cordial reception that I met with from him. Another grasp was from the energetic naturalist, Mr. R. Kennicott*, who came into the district with me and passed the greater part of his first winter at Fort Simpson. He delighted me with the assurance . . . that his efforts had been crowned with much success, especially in the collection of eggs . . ." Amongst those shown to him, Mr Kirkby enumerates five varieties of ducks, and seven other birds, including the trumpeter swan; he goes on "With the exception of the waxiny [*sic*] however, there are few that have not been obtained in other parts of the district by the persevering zeal of Mr [Bernard] Ross, the gentleman in charge, and it, I have since learned, nested numerously in the vicinity of my outstation at [Great] Bear Lake."

Having thus dealt with his journey and some of the people he met, Mr Kirkby proceeds to give an account of the native people: "On my arrival at the Youcan there were about 500 Indians present all of whom were aston-

*The Beaver, September 1943

Kutchin hunter, left, and Kutchin woman, drawn in 1847-8 by Alexander Hunter Murray.

ished, but agreeably glad to see a missionary among them. They are naturally a fierce, turbulent and cruel race; approximating more nearly to the Plains tribes than to the quiet Chipewyans of the Mackenzie valley." They peopled the area from the Mackenzie to Bering Strait, north of latitude 65, and had formerly been very numerous, but internal wars and their contests with the Eskimos had diminished their number. They were divided into many petty tribes, each with its own chief, but in general appearance, dress and habits were all much the same, and all went under the general names of Kutchin (the people) or Loucheux (squinters or slant eyed)—the former their name for themselves, the latter the white traders' name for them. "Irrespective of tribe, they are divided into three [social] classes termed respectively, Chit-sa, Nate-sa and Tanges-at-sa—faintly representing the aristocracy—the middle classes—and the poorer orders of civilized nations, the former being the most wealthy and the latter the poorest. In one respect however they greatly differ, it being the *rule* for a man *not* to marry in his own, but to take a wife from either of the other classes. A Chit-sa gentleman will marry a Tanges-at-sa peasant without the least feeling *infra dig*. The offspring in every case belong to the class of the mother. This arrangement has had a most beneficial effect in allaying the deadly feuds formerly so frequent among them."

Mr Kirkby describes the dress of these people as being a tunic or shirt reaching to the knees; the trousers and shoes attached, all ornamented with bead-work and Hyaqua* shells from the Columbia. Men and women were attired similarly, except that the tunics of the latter were rounded in front, instead of being pointed. He says "The beads, above mentioned, constitute the Indian's wealth. They are strung up in lengths in yards, and fathoms, and form a regular currency among them. A fathom being the standard and equivalent to the 'Made Beaver' of the Company. Some tribes, especially the Kutch-a-Kutchin are essentially traders, and instead of hunting themselves purchase their furs from distant tribes among whom they regularly make excursions. Often the medicine-men and chiefs have more beads than they can carry around with them, and when this happens the Company's stores are converted into Banking establishments, where the deposits are invested for safekeeping.

"The women are much fewer in number and live a much shorter time than the men. The latter arises from their early marriages, harsh treatment they receive, and laborious work they daily have to perform. While the former, I fear, is caused by the cruel acts of infanticide which to female children have been so prevalent among them. Praiseworthy efforts have been made by the Company's Officers to prevent it, but the anguished and hardened mothers have replied that they did it to prevent the child from experiencing the hardships they endured." Mr Kirkby, commenting upon the prevalent polygamy

*Chinook jargon for dentalium shells.

Kirkby in travelling dress, as depicted in "Dayspring in the Far West."

A Mackenzie Delta Eskimo and, right, Fort Simpson, from "Dayspring . . ." in which some of the illustrations tended to be fanciful.

amongst them, remarks "that this custom is based upon the male desire to have more of these poor creatures to haul his wood, carry his meat and do the work around his camp. The girls married young, but no courtship preceded, nor any ceremony attended the occasion; all that was necessary was the sanction of the mother, sometimes a matter of negotiation—the father had no voice in the affair at all."

With regard to religion, Mr Kirkby notes: "Altars or rites of religion they have none, and before the traders went away there, not even an idea of a God to be worshipped." They had implicit faith in the powers of their medicine men, but paid a high price for their aid in times of sickness or distress. "Knowing their prejudices, I commenced my labours among them with much fear and trembling; but earnestly looking to God for help and strength, and cannot doubt that both were granted. For before I left the Medicine-men openly renounced their craft—polygamists freely offered to give up their wives—murderers confessed their crimes and mothers told of deeds of infanticide, that sickened one to hear. Then all earnestly sought for pardon and grace." Mr Kirkby remarks that since his return to Fort Simpson he has read a glowing picture of savage life, which seems to him to over romanticize it—"To draw a picture of savage life is one thing; to see 'the Heathen in his darkness' is another." He had been told that it would not be safe for him to declare the Gospel among the Indians of the Yukon, but felt that the Indians on the boat would report favourably on what they had heard. Mr Hardisty, a former Chief Trader at Fort Yukon, had provided him with a letter, which was read to the Indians by Chief Trader Lockhart, who was in charge at the time of his visit. "Twenty years had not elapsed since the white man planted his foot in the Youcan valley, and since he has been there, his influence has been to improve and not to contaminate."

The Hudson's Bay Company began to send exploring parties to what is now the Yukon Territory in 1834. The first, under the leadership of John McLeod, tried to reach there by pushing up the Liard and Nahanni Rivers, and then from 1836 they were led by Robert Campbell—the latter finally reached Fort Yukon in 1851 from the south to find W. L. Hardisty already in charge there, as the northern exploration parties, based on Fort Good Hope on the Mackenzie, had found a better route into the Yukon. John Bell had explored Peel's River in 1839, and built Fort McPherson the following year. By 1844 Bell had gone down the Porcupine to its junction with the Yukon, and in 1847 Alexander Hunter Murray built the remarkably strong Fort there.

Stressing his own opinion based upon his experience, Kirkby writes: "And if a testimony is valuable, more from the cause to which it is given, than from the source whence it proceeds, most heartily do I bear mine to the humane and considerate treatment that the Indians of the Mackenzie River District receive from the officers of the Company. In many instances that I could mention, the officer is more like the parent of a large family of adult children than what his position represents. The undoubted fact is, that the whole tendency of heathenism is to brutalize and debase; while it remains with civilization and the Gospel to elevate and to bless."

On this visit Kirkby was only able to stay at Fort Yukon a bare seven days; he left on July 13th and reached Fort Simpson on August 29th, the return journey having taken him practically two weeks longer than the one down stream. The Fort Yukon Indians had parted with him reluctantly, for they were eager to learn more; he promised them that if it were possible he would come again the following year.

In 1862 Kirkby left Fort Simpson on May 26th, reached Peel's River Post on June 15th and Fort Yukon on June 27th. Of this he wrote to the Church Missionary

Eskimos at Fort McPherson in 1892, photographed by Chief Factor James McDougall. In the same year, an American woman, Elizabeth Taylor, travelled down the Mackenzie and made the sketch, below, of Fort McPherson.

JAMES TAYLOR DUNN

Society on November 29th: "You will be glad to know that I made another successful visit to the Youcan during the summer. The journey was not so pleasant as the one before, sorrow and opposition having met me in my path. . . . The Youcan Indians received me with every demonstration of delight, and nine days of hard and happy labour I had with them." Mr Kirkby's methods appear to have been strenuous, but schoolmasterly. He arranged the largest room in the Fort as a schoolroom, with Bible pictures hung around the walls, and divided the Indians into four groups, which he met separately except in the early morning (for the day started at 6 a.m.) and evening to close the day. Not very expert in the Tukudh or Loucheux language himself, he seems to have accomplished his work with the aid of at least two interpreters. What religious ideas the Loucheux had at that time appear to have been primitive ones directed to warding off evil, and so Kirkby, by his own account, tried to make them realize God as a beneficent Being who desired their welfare, and centred his theme in the Ten Commandments. In one of his letters, he says "As I had done at Lapierre's House, I endeavoured here to teach the hymn, and morning and evening prayer to five or six of the young men thoroughly, so that they may teach others after my departure."

Kirkby's reports on his 1861 expedition appear to have stirred interest and enthusiasm both in London and at the Red River Settlement. There is a tradition that in St Andrew's Parish, Red River (possibly stimulated by Archdeacon Hunter himself), so much enthusiasm was aroused that the people themselves provided the means to send Robert McDonald to the Yukon in the summer of 1862. Kirkby got back to Fort Simpson on August 13th with the H B C brigade, to find McDonald had arrived the same morning. McDonald stayed until the 26th and then went on to Fort Yukon, which he reached on September 23rd. Here he stayed for eight or nine years, for although the United States government bought

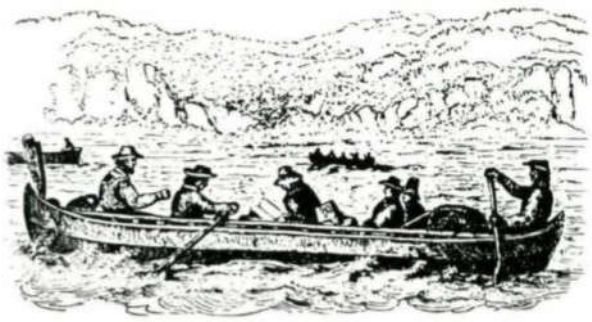
the Alaska territory from Russia in 1867, it did not take possession until 1869. The H B C then moved upriver to Rampart House but McDonald continued to minister at Fort Yukon for another two years, when he moved back to the post on Peel's River, by that time known as Fort McPherson.

In the meantime, early in 1865, an urgent appeal was made in London by Bishop David Anderson for some one to replace McDonald who was reported to be seriously ill, and it was to this appeal that William Carpenter Bompas responded. The spartan life to which Bompas accustomed himself, his journeys up and down the Mackenzie and Peace Rivers, and his penetration of the Yukon country to its present southern boundaries, have raised him to a legendary fame which has overshadowed that of his two earliest contemporaries in the Mackenzie District, William West Kirkby and Robert McDonald. Though it is sixty years since he left Fort McPherson, and more than fifty years since he died in the little house in Point Douglas, Winnipeg, in which it is quite probable that he was born, the name of Robert McDonald is still held in high esteem by the Kutchin or Loucheux Indians of the Yukon and Alaska.

Kirkby took his family to England in 1858 on a long overdue furlough. "Rev. W. W. Kirkby having arrived at Red River on his return from England, and being too late for the Mackenzie River boats, proceeded to Fort York [*sic*] to take charge of the mission in Mr Mason's absence," is a statement which appears under the date 1870 in *Dayspring in the Far West*, a popular history of the work of the Church Missionary Society, written by "M.E.J." and published in 1875, which carries on the story of the Society from where Sarah Tucker left it in the 1850s in her book *The Rainbow in the North*. The Rev. William Mason never returned to York Factory, or Canada (he spent the rest of his long life in parochial work in the north of England), but Kirkby remained at York Factory until 1879. Still an indefatigable traveller, he twice journeyed to Churchill (1871 and 1873), on his second visit spending four months there instructing the Chipewyans and Eskimos, and translated two Gospels, ten hymns and the more important parts of the Prayer Book into the Chipewyan language. In 1872 he went south to Fort Severn and inland to Big Trout Lake. As he had laid the foundations for the work of McDonald and Bompas in the far Northwest, so he did for that of Joseph Lofthouse at Churchill and Archdeacons G. S. Winter and Richard Faries at Fort Severn and in the country to the south. At the end of 1873, under the division of the original Diocese of Rupert's Land, York Factory came within the boundaries of the new Diocese of Moosonee and in 1876 Bishop John Horden appointed him the first Archdeacon of York.

Archdeacon Kirkby left Canada in 1879 to take up work in New Jersey, in the United States, and was rector of Rye in New York when he died on 7 September 1907. Archbishop S. P. Matheson recalled him in his sermon at the Centenary Service of Rupert's Land in 1920 as "a man small in stature but great in force both mentally and spiritually. . . . He was a man of commanding power." Young Samuel Matheson was only about six years old when he saw the future Archdeacon of York but a lasting impression was made on a retentive mind. Perhaps it was this power of impressing retentive minds that made his work in the Mackenzie River District a hundred years ago, and a shorter time ago than that on the shores of the Hudson Bay, so effective amongst the primitive peoples to whom he ministered. ♦

The arrival of the Rev. W. W. Kirkby at Churchill in 1873, an illustration in "Dayspring . . ." said to be made from a photograph taken on the spot.



A TRIP IN 1848 TO THE NORTH SHORE OF LAKE SUPERIOR

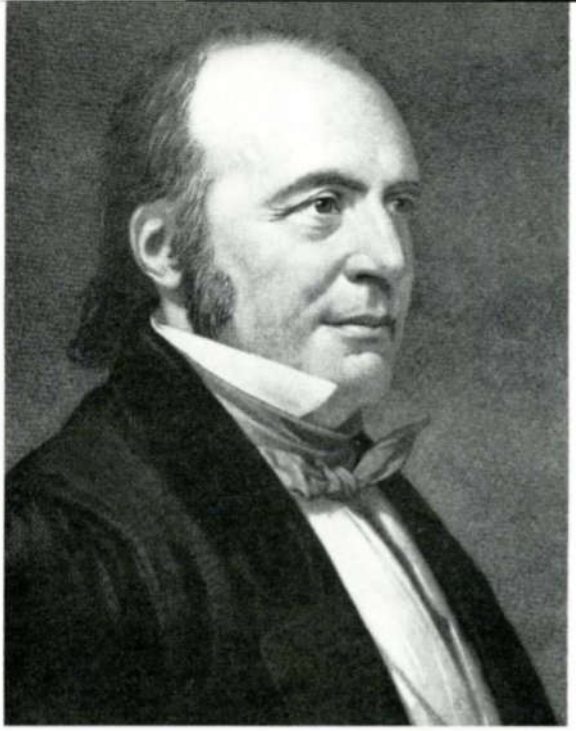
BY MARTHA C. BRAY
former librarian, now free-lance writer

THE SCENERY OF THE NORTH SHORE of Lake Superior from Sault St. Marie to Fort William, though it may be enjoyed today from a highway, is still rugged and lonely. The cliffs, repeating their formations with a grand monotony like the chords of a solemn processional, are still remarkable in the landscape of the world. Reflections upon the odyssey of the voyageur who carried the trade of European cities across this treacherous inland sea can still stretch the mind and imagination. It is possible in this emptiness of forest, rock, and water to see the same world which the fur trader saw and, if one is inclined, to face the same dangers and discomforts as he from the elements.

One group who travelled from Sault Ste. Marie to Fort William in 1848 has not received today the attention which its contribution to the understanding and enjoyment of the region would warrant. These men came to study the natural history (to use the phrase in its comprehensive nineteenth century sense of the physical environment) of the lake. They were led by the distinguished Swiss naturalist, geologist and teacher, Louis Agassiz, who had come to the new world only two years earlier. He had already travelled in Brazil and for fourteen years had been a professor of natural history at a university in Switzerland where he turned his attention to glaciers. Coming to America to further his studies, he became a popular lecturer and in 1848 was appointed professor of zoology at Harvard University. This trip was his first, and turned out to be his only, scientific exploration into the interior of North America. Lake Superior was then, as it is now, one of the grand sights of the continent, and for Agassiz it held special promise for scientific research.

The party consisted of sixteen men. Nine were college students, some of whom were scientifically trained, others having only a lively curiosity and sense of adventure. Agassiz and Dr William Keller were listed as instructors. In the group, which included a geologist, an entymologist, and a physician, was a Bostonian, J. Elliot Cabot, who wrote the pleasant narrative that accompanies the published account of the trip and made the official sketches along the way.

The purpose of the expedition was, primarily, to gather zoological and botanical specimens for comparison with those of other parts of the world and with the fossils of other geological ages. Before Agassiz left Europe, his monumental volumes on *Poissons Fossiles*, the result of years of research, had received acclaim. It was his ambition to continue work in this field of comparative zoology. It was also his purpose—and this was perhaps even more important to him than publication—to conduct a sort of laboratory school, a method of teaching



MINNESOTA HISTORICAL SOCIETY

Louis Agassiz. This portrait and the sketch of his boat are from the book by Agassiz and Cabot.

which he hoped to continue in some way every summer. He had a deep belief that in observation of the facts of nature there was tremendous intellectual stimulation for laymen as well as for professional persons. More than that, he believed that through intelligent observation and comparison one could not fail to become conscious of the great creative plan which lay behind all of the ordered variety of the natural world. In the long run, his reputation came to rest upon his genius as a teacher, and this he would have considered to be well worth his lifetime of work. Teaching was a delight to him.

The direct result of the Lake Superior trip was the publication of *Lake Superior: its Physical Character, Vegetation, and Animals, compared with those of Other and Similar Regions* (Boston, 1850), a volume which served for a number of years as a model for books of its kind. "When before," wrote a contemporary reviewer, "did a summer vacation yield such a harvest?" When since? we might ask. For we are inclined today to let colour film do the observing, forgetting that the mind which uses the camera is more than a lens and must have asked the right questions first if there are to be interesting answers.

How came the lake to be where it is? What has given it its shape? Why the precipitous cliffs of its northern shores and islands? Whence its ores and metals? What is its vegetation and what corresponds with it? What are its animals? These are the questions asked by the "philosophical traveller" of the nineteenth century. These are the questions which Agassiz raised in the minds of his companions. His party looked for the answers with deep intellectual excitement. Though some of the conclusions drawn by Agassiz are old-fashioned or erroneous, the method of his observation and teaching is of extreme interest and value to a generation which, more than any other before it, has opportunity for the educational experience of travel and which has the wilderness still at its doorstep.

The party travelled from Niagara Falls to the Sault by steamer, a journey of seven days. On 30 June they left the Sault, travelling in two canoes and a mackinaw boat —a cross between a dory and a mudscow. It took them twenty-two days to reach Fort William and twenty-one days to return to the Sault. The lead canoe was "distinguished by a frying pan rising erect over the prow as a figure head". The boat had room for scientific apparatus and for specimens to be collected. It became obvious while they were loading for departure that these three vessels were inadequate, and two men remained behind to prepare another canoe. This was a fortunate decision, as Agassiz's collection alone at the end of the trip consisted of four large barrels and twelve large boxes. The third canoe, the large "Dancing Feather," pulling three oars, rejoined the party at Point aux Pins. There were then four separate parties within the group, and they slept and camped as such. It is interesting to note that the most satisfactory type of tent in soaking rain turned out to be one brought by Dr Marcou who had been an officer in Algiers. It was square with perpendicular sides and though designed for desert use was entirely waterproof and in every way more convenient than the others. Both the boats and canoes were rowed, the canoes being fitted with an ingenious contraption of branching wood and rawhide nailed to the gunnel for oarlocks. Occasionally a canoe would go under sail "swaying gently from side to side like a sea-bird changing wings" and making "a comparative calm by its rapid flight". Occasionally, too, it was paddled when the surf was high at the time of a landing.

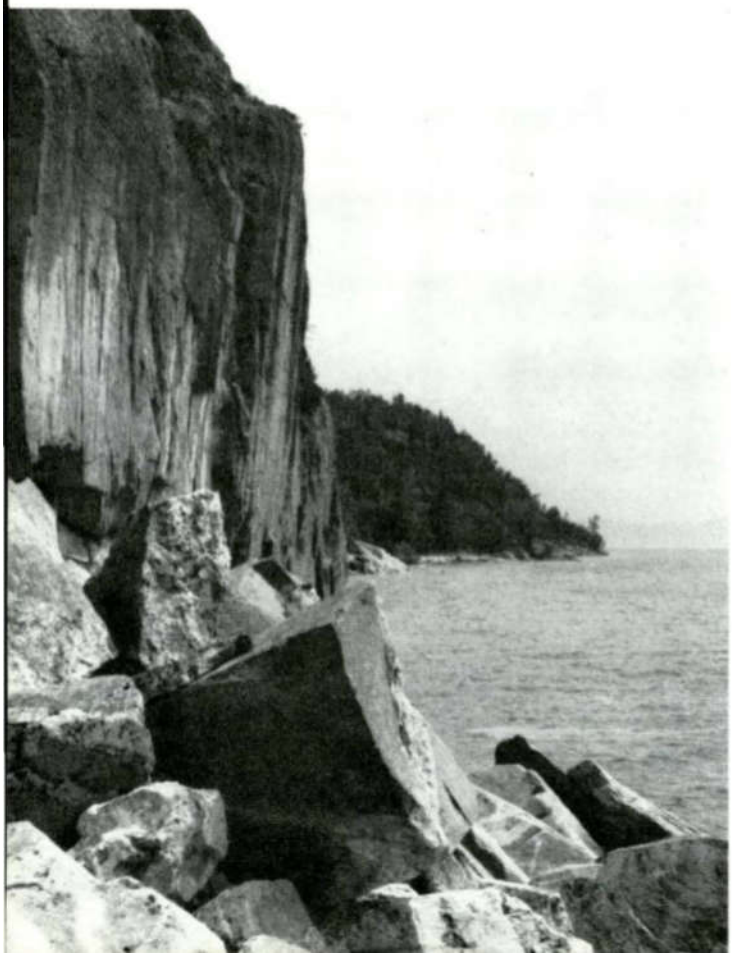
A crew of twelve French Canadian and Indian boatmen rowed and guided the party, attending also to their passengers' comfort; carrying the gear, choosing the spots for camping (a process frequently involving good-natured rivalry between the boats) and, when the roughness of the lake demanded, even carrying the members of the party ashore astride their stalwart backs. Henry, the steersman, spoke a little English, was slow in wit and the best cook of the lot (his flat bread was surprisingly delicious) and John, who spoke only Indian, was the natural leader among them. He laughed a great deal, was always on the watch for sudden danger, and seemed to know instantly what was needed by everyone. They all kept up an unceasing low chatter and occasionally sang

the bawdy songs, as the professor noted with amusement, of the ancient regime, keeping time well and with a "heartiness and spirit". When loons were heard, the men cried "Oory, oory"—a kind of Indian hurrah—and the loons would fly in circles around their heads.

The party received instruction from Agassiz on paleontology, ichthyology, and the phenomena which had come to his attention during the day's journey. He lectured often in the evening or on rainy days, illustrating his remarks with chalk on black canvas pinned against the side of a tent. One rainy day he went fishing with a few companions, who were sensibly enough protected by waterproof clothing, while he "regardless of wet and cold, sat soaking in his canoe enraptured by the variety of the scaly tribe, described and undescribed, hauled in by their efforts". In the afternoon he lectured on ichthyology "scalpel in hand, and a board well covered with fishes little and big before him". It is easy to understand why his companions regarded him with affectionate admiration. His intense interest in the distribution of plants and animals led him to generalizations very close to those involved in the theory of evolution, a theory which he was never able to accept on scientific grounds. His comparative study of structure of organisms led him to pronounce quite definitely that each form, marvellously adapted as it was, was purposefully created by a great intelligence. He was eager to study the inhabitants of Lake Superior, for he felt sure they would be different from those of other lakes because of their origin in the great inland sea. His method, by which every fact bore a relation to every other, and which stimulated thoughtful questions through observation, was tremendously influential in his time. He emphasized that one must have real humility in the task of searching for the truth and in so doing inspired a kind of awe for every object he noted or handled. It was from this point of view that Lake Superior was observed by his party.

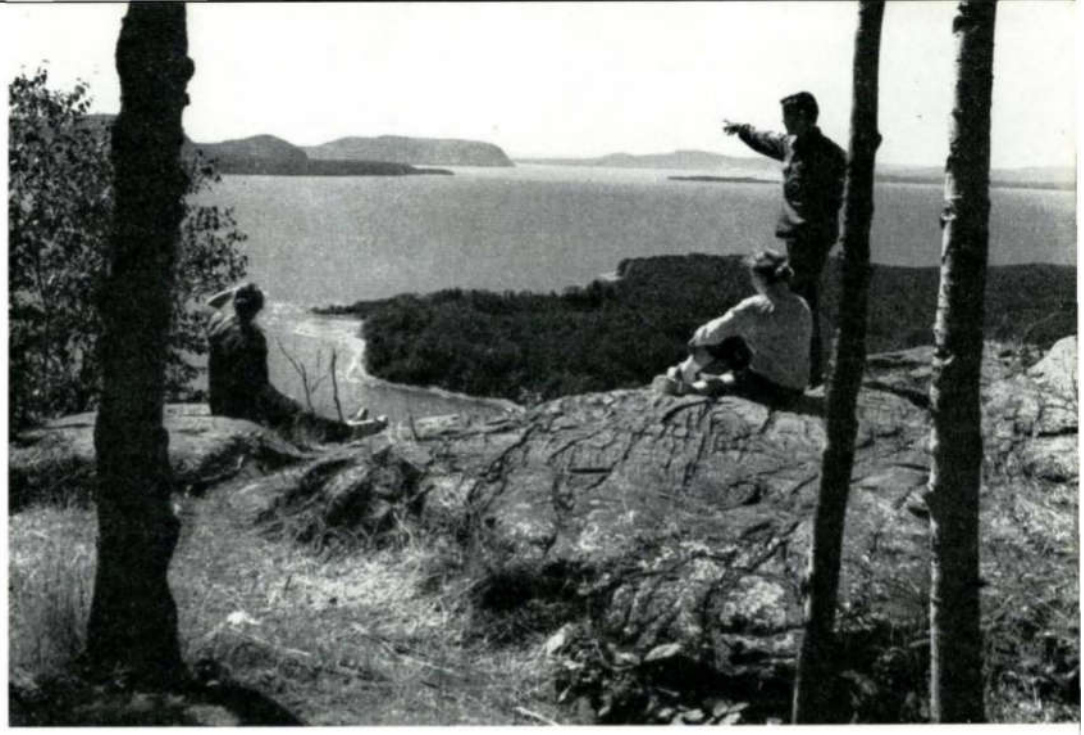
Agassiz was, more than any other person, the author of the theory that many features of our modern landscape—striations on polished rock surfaces; boulders erratically strewn about; gravel containing rounded stones; and the steep southern cliff faces of hills whose northern exposures were gently sloping—were the results of glaciers which once covered a large part of the northern hemisphere. "God's Great Plow," he occasionally called this powerful force, but even he did not recognize the colossal pressure which had dug out the bed of Lake Superior. He thought it probably that the ancient terraces, often as high as three hundred feet above the level of the present lake beaches, were attributable to the elevation of the land subsequent to the glacial action. That the "great plow" had scooped out the basin of the huge lake was beyond even his powers of imagination.

He spoke at length upon the theory of the terraces and upon the proofs of the glacial history of the region when the party was camped at the mouth of the Black River which flows into the lake a few miles to the east of a small cove known today as Terrace Bay. Cabot described the spectacular terraces as being "on a grand scale . . . forming a series of vast unbroken arcs of about a mile chord,



A vertical cliff face at the eastern end of the lake, and lichen encrusted cobbles on one of the old raised beaches.

JOHN MACVIE PHOTOS



Looking out over the islands near the eastern end of Nipigon Bay.
ONTARIO TRAVEL DEPT.

ascending one above the other to a height of several hundred feet . . . like a gigantic amphitheatre".

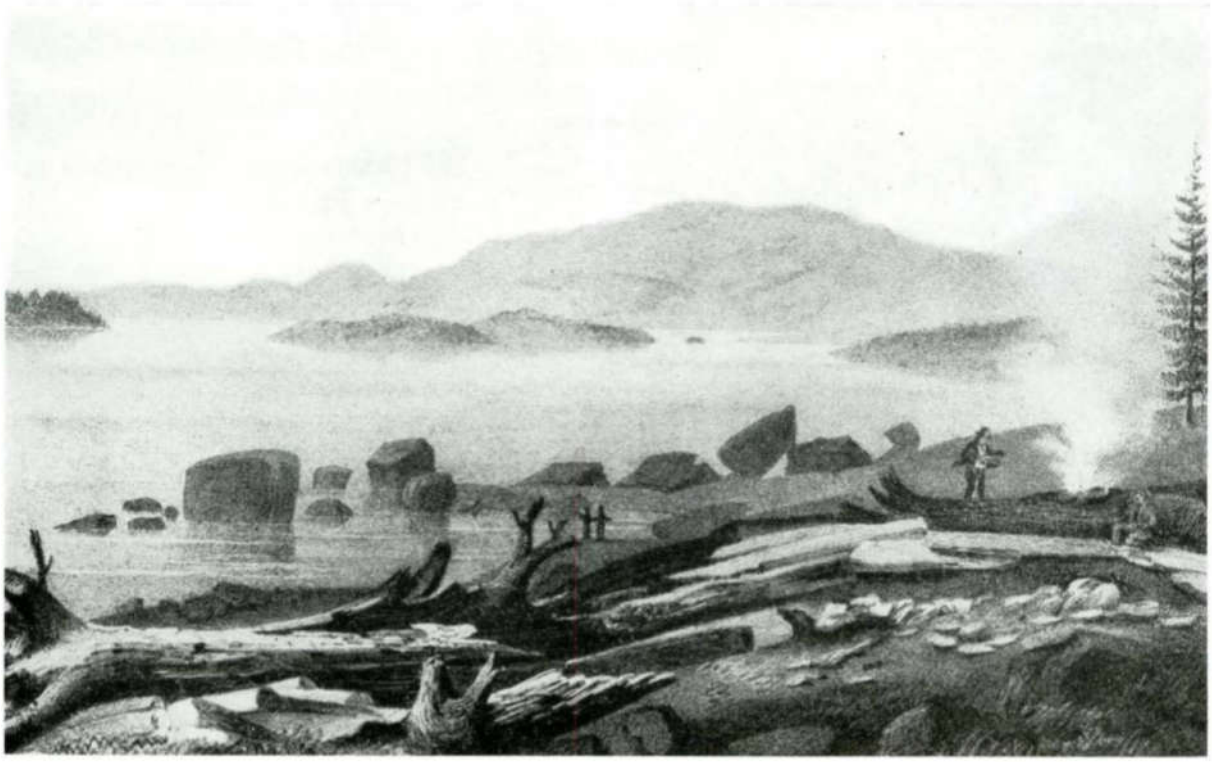
The uniformly rounded and scratched surfaces of the rocks all along the way had constantly been pointed out by Agassiz, and the only map in his book, a small outline by Sonrel, indicates the location and direction of the major striations. At Point aux Mines, Agassiz showed "proof positive" of glacial action on a large rock, polished and scratched in grooves which ran in two directions. The striae continued below the water's edge "from which they ascended in some places at an angle of 30° with the surface," showing, as the Professor remarked, that they "could not have been produced by a floating body". And wherever this rock was exposed it had been ground down to an even surface, which could not have happened had the agent been water. He emphasized, too, as the occasion arose, the plutonic origin of most of the Lake Superior rocks and their ancient character. "If geology had first been written in America," he remarked, "the text-books of the science would read differently."

The lectures and general remarks of Agassiz illustrate his teaching mission, and through them his personality pervades the atmosphere of the expedition. His observations are, however, summed up formally in the scientific papers which form the greater part of the published volume and which include four contributions by others. His own geological observations conclude the series and here are the impressive arguments which, added to the already convincing theory of glacial action, are reason enough that the great glacial lake which formed the Red River Valley and central prairie basin should be known as Lake Agassiz.

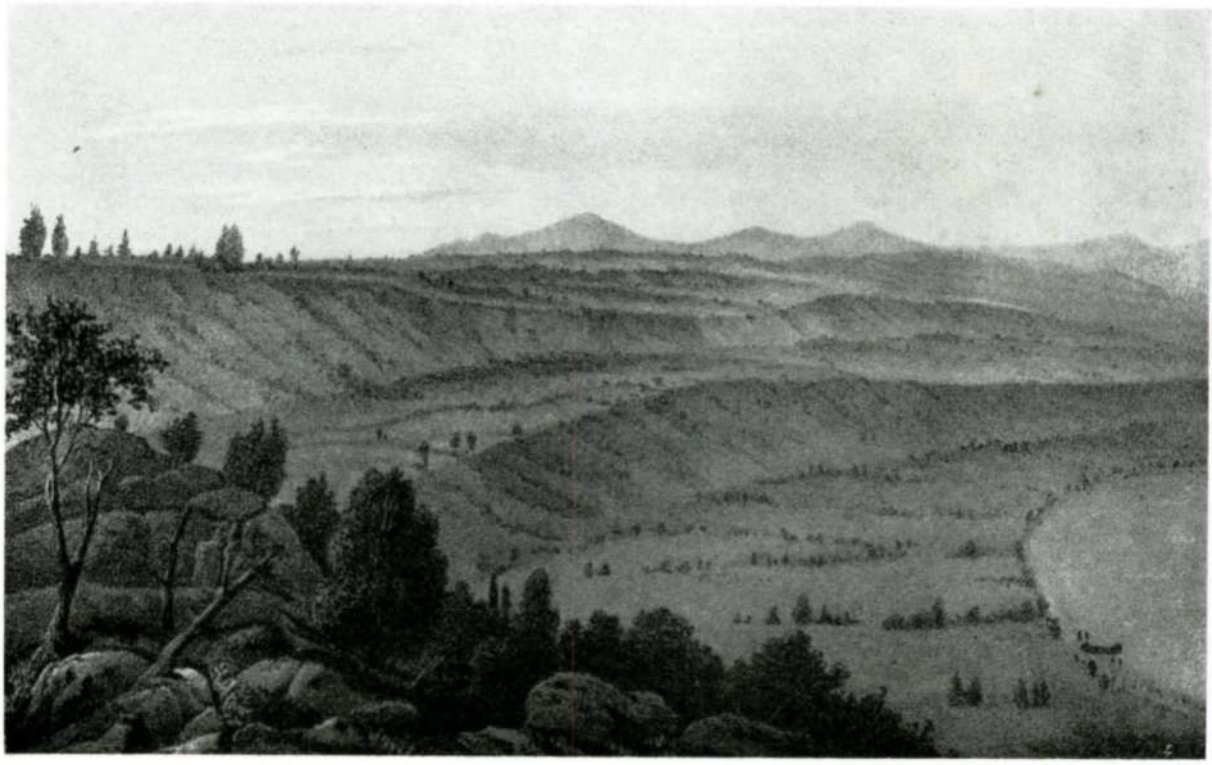
Other papers on the vegetation and animals were significant enough at the time to be widely reviewed and praised. Probably today they are of only academic interest, but the philosophy and enthusiasm of the whole expedition is reflected in these presentations which always represent a clear and careful analysis of what was seen.

Mr Cabot, author of the daily journal, was a real disciple of the master. A great deal of what he sees he interprets through the training he had received from Agassiz, and the result combined with his perennial enthusiasm is as readable and interesting a travel log as could have been written about the north shore. He places himself immediately in the picture when, one night out from the Sault, he stands on the edge of the great lake, "a desolate mass of sand, with a tent standing against the bleak sky, backed by a few stunted willows, the river a couple of hundred yards in front and a horizon of forest beyond". He felt "an unusual and unaccountable exhilaration, an outburst perhaps of that Indian nature that delights in exposure, in novel modes of life, and in going where nobody else goes". He is a romantic, but his sensibilities remained keen. Many days later he writes that being in the north woods is "like being transported into the early ages of the earth, when the mosses and pines had just begun to cover the primeval rock and the animals as yet ventured timidly forth into the new world". His days are filled with interesting experiences, shared in his easy prose.

To begin with, there are the flies. When the wind blew fresh, the party might hope to be free of the mosquitoes, but not of the flies. "When the wind blew very hard, they would make a lee for an instant, and then reappear in



Agassiz's book "Lake Superior" with narrative of the tour by J. Elliot Cabot was, to quote the title page, "elegantly illustrated." These pictures from the book show Pic Island from a stopping place the party called Camp Porphyry, and the ancient terrace formation curving round a bay.



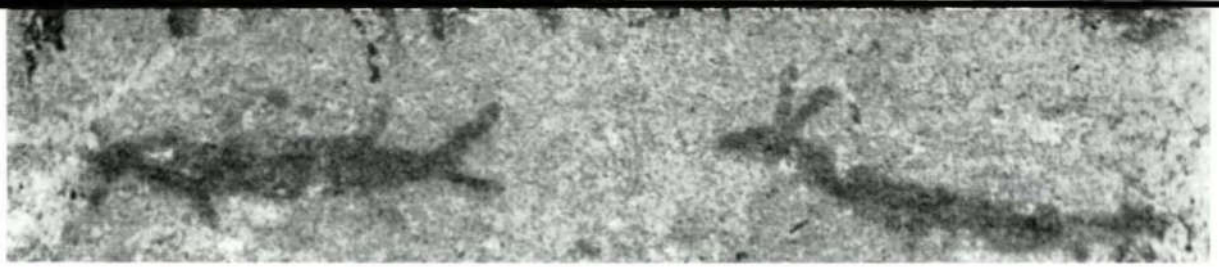
From Fort William some of the party went up-river to visit Kakabeka Falls.
PHOTOS MINNESOTA HISTORICAL SOCIETY

clouds." He and his companions returned from a trip to the top of a cliff just beyond Gros Cap with their heads speckled with blood "as if charges of gunshot had been fired into them". His complaints about the flies are constant and his enthusiasm for random hikes noticeably dims. The tiny sand flies were the worst, biting through almost any cloth. Only camphorated oil would protect against them.

The entrance into the lake between Gros Cap and Point Iroquois on the south shore he calls the Pillars of Hercules of Lake Superior. At Mamainse Point, the "grand uniformity" of the lake begins—the forest covered shore and the continuous line of cliffs rising to an average of between two and three hundred feet above the water. On 6 July, having been out on the lake six days, the "noble prospect" of Cape Gargantua rises before them. Cabot notes the rocky islets with glacial grooves and scratches and a cliff with a vertical face of at least 200 feet "dyed with an infinite variety of colors by the weather and lichens". Just beyond this was a curious rock which in Indian legend was the evil one, and there the men, laughing but half in earnest, still left tobacco to placate him. On 20 July Thunder Cape came into sight, the "horizontal stratification plainly visible from a distance on the face of the vertical basalt-like columns rising out of the forest". That same night they reached Fort William. Here a number of the party visited Kakabeka Falls, approaching them from the river and looking up at them from the small island at their foot, which had been reached with some peril. Cabot describes them thus: "In the first place, each of the two side-falls has worn for itself a deep semi-circular chasm, which with the foot of the cliff projecting from below, gives the appearance of two horseshoes joining in the middle, as if two separate streams had happened to come together here. This peculiar conformation throws the masses of water together in the middle, whence they are thrown up by the resulting force, as if shot out of a cannon. The turmoil is further increased by projecting rocks—which on the right particularly, shoot the water inwards toward the centre at right angles with the course of the river." This same kind of analytical description is given for each of the many falls they saw.

At Fort William the "Dancing Feather" left to return by the longer route of the south shore while the rest of the party retraced their northern course. The entrance to Nipigon Bay is described by Cabot as "the epitome of all the remarkable scenery of the Lake . . . We were enclosed in an inner sea, a Lake within a Lake: St. Ignace behind us and on either side ridges of granite a thousand feet high. A sea of hills, rising from the rocky islands a few miles off, one over the other to the chain far behind the bottom of the bay".

Wild and magnificent though the scenery was, monotonous though its grandeur, the journey was by no means devoid of human interest. At Point aux Mines, the party made the acquaintance of Captain Matthew, the superintendent of the establishment which belonged to the Quebec Mining Company, and his wife. They lived in a neat cottage surrounded by store houses and workmen's lodgings, and here the party enjoyed a civilized cup of tea. Michipicoten was the principal post of the Hudson's Bay Company and the agent, Mr Swanston, although he had lived in the wilderness for over twenty years, "might have left the pavement of Fenchurch Street only yesterday". The buildings of the factory, the lodges, the white



Pictographs on the east shore, now the Provincial Park area. JOHN MACFIE

tents, the Indians and their dogs presented "a stirring spectacle". Mr Swanston told the party that the hunters were always scrupulous about discharging their debts, whatever their lapses might be in other areas of morality. Here, early in the journey, Cabot was vindicated in his complaints about the flies, for everyone, even the hunters, said that they had never known them as vicious or numerous.

The Pic, about midway between the Sault and Fort William, was the smallest of the three Hudson's Bay posts. A Mr Begg and his wife were resident there and kindly offered to care for one of the party who was ill of a fever and had to be left behind. On their first stop here Agassiz caught a "new species" of pickerel, and while Cabot was sketching it, all the Indians from a nearby lodge came and squatted before him silently watching. Their interest was far from scientific, however, as they finally made known the fact that they had not eaten all day. Agassiz's party, shocked by this "breach of propriety" offered them pork and biscuits, the sketch not yet being finished. Three days after they had left The Pic and headed towards Fort William, the party passed a canoe, heading eastward under sail at great speed. It was Governor Simpson who had been due at The Pic for his annual visit during their stay there. Passing Pic Island, Cabot noted on its bold peak effects of fire carelessly left by campers or hunters: "the foliage of the trees being destroyed and their roots killed, they no longer hold together the soil and it is accordingly swept off by the next rains, leaving a clean surface of white, calcined rock for Nature to cover again in the course of ages, by the slow succession of lichens, shrubs and trees."

Fort William, the third post of the Hudson's Bay Company, had once been a stronghold of the North West Company and the scene of great festivities during the grand annual council of that organization. A little of this spirit remained, as a dance was held one evening for the visitors in a cabin near the fort in which everyone joined with "the greatest jollity" in spite of the absence of ladies. Mr McKenzie, the gentleman in charge, had received mail for the scientific group by propeller from the south shore. He accompanied them up the Kaministiquia River and took the greatest interest in their mission.

Returning along the north shore just beyond Nipigon Bay, the expedition was joined, as it camped at the mouth of the Black River, by a group of government surveyors marking out mining locations. One of them acted as a guide in a scramble up to see the falls, and another told them of a kind of brown bear, neither black nor grizzly, to be seen often in this region.

If the scenery was uniform, the weather made up for this by its variability. Cabot suffers from sunburn, cold, and damp within a period of a few hours, and seldom did he note a steady wind. At The Pic on the way home he wrote of "a contrast such as the lake seems to love, as if it sought to break up the uniformity of its general features as much as possible by brisk and abrupt changes in minor ones". Here, on a morning when the wind was so strong there was no chance of taking off, he could see at a distance of a mile or more the breakers at the mouth of the bay while he stood in silence as "if we had been at the bottom of a well" with only the occasional eddies of wind from all directions in the tree tops.

Cabot was an amateur botanist and a bird-watcher. He noted the abundance of white-throated sparrow at the Sault "pouring forth his wild, striking note" from every dead tree top. At Les Ecourts (now corrupted to Point Isacor) he noted masses of swallows and a pair of nesting sparrow hawks, not rare but always of interest to him. At The Pic there were two rare species, so he said, of woodpeckers and near the Slate Islands he saw a species of chickadee. At Fort William, as at the other Bay posts, were many partridges, and at the Fort too were crossbills and ravens. On the whole, however, he noted the stillness and loneliness of the woods, and in his scientific report he again recorded the remarkable scarcity of living creatures.

One cannot say, however, that his interests were universal. The Indian pictographs along the northeast shore, now justly famous, received little comment in his journal. A sentence sufficed for the "rude pictures of canoes, caribou, horses and snakes cut out of the black lichen on the perpendicular side of the rock". The drawings had been described by Schoolcraft, many years earlier, but apparently no one in the party was aware of their ethnological interest. The family of man seemed not to be included in their study of the distribution of organisms over the earth.

To read the volume published as a result of this trip of more than a century ago is to see Lake Superior from Agassiz's point of view as an object of nature unique in its entirety but revealing in each of its phenomena a remarkable truth about the planet we live on. For travellers who do not share the advantages of being a part of a scientific expedition, knowledge of this narrative will make their trip vastly more interesting. •

PHALAROPE MYSTERIES and some solutions

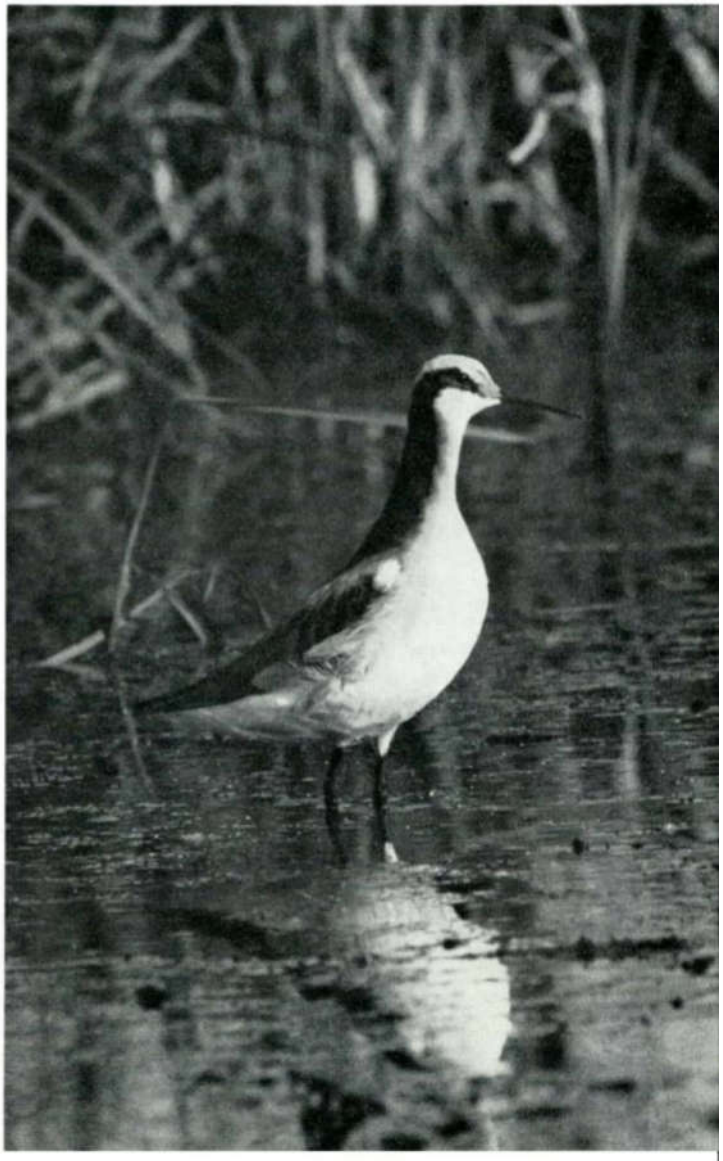
BY E. O. HOHN

PHALAROPES ARE roughly hand-sized, snipe-like shore birds. Their collective name, derived from the Greek and meaning "cootfoot", is based on the fact that like coots (popularly known as mud-hens in the West) these birds have lobes of skin along the sides of the toes. This makes their feet more useful for swimming. The phalaropes are indeed the only shore birds which not only wade in shallow water but float very buoyantly on fresh or salt water. Two of the three species of phalaropes in existence, the Red and the Northern Phalarope, are outside the breeding season virtually sea birds. They are often found very far from land for example off the coasts of Chile, West and South Africa, feeding on various small crustaceans of the floating marine plankton and at times even alighting on the backs of whales on which they probably find certain edible external parasites. The Red Phalarope nests on the tundra both in the old and the new world, in arctic coastal areas. Its most southern breeding stations are in Iceland.

The Northern Phalarope also breeds in the eastern as well as our own hemisphere but has a subarctic rather than a truly arctic breeding range and often nests very far inland. Dr Robert Nero of Regina College, recently found one of these birds with young in Northern Saskatchewan, just south of Lake Athabasca. This represents the most southern known breeding point in North America and shows how far inland the breeding range may extend. In Europe however the Northern Phalarope nests in small numbers as far south as Scotland, Ireland and Estonia.

The third member of the group is Wilson's Phalarope, named after Alexander Wilson (1766-1813). Wilson was a Scotsman who emigrated to America and there eventually

For some years Dr Hohn, associate professor of physiology at the University of Alberta, has been doing research on the phalaropes. An illustrated brochure by him on these birds is being published this year, in German, by A. Ziemsen in the series Die Neue Brehm Bucherei, available from the Co-operative Book Centre of Canada in Toronto or W. S. Heinman in New York.



A slightly alarmed female Wilson's Phalarope in alert posture.

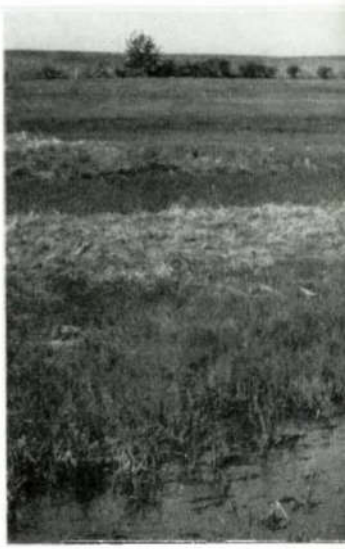
established himself as an ornithologist. Wilson's Phalarope breeds only in North America—in western Canada, the western States and parts of northern Mexico. It winters, not at sea like the other two phalaropes, but in inland swamps of the South American pampas.

Wilson's Phalarope is actually one of the characteristic birds of our prairie sloughs. It often breeds in the vicinity of waters which may be practically in a farmer's yard and it has nested on some small ponds within the city limits of Edmonton. This illustrates another feature of these birds—their often extreme tameness. This may be due to the fact that the two species which nest in the far north rarely encounter man; while the Wilson's Phalarope, which breeds in country that is now settled, nevertheless has a home range that until recently was only thinly inhabited by Indians who would not, of course, bother to molest so small a bird. The extreme tameness, accompanied in this case by the bird's parental urge, is demonstrated by a male Northern Phalarope which stepped into the hands of a Swiss friend of mine who was holding the bird's downy young. The bird remained brooding its young in the observer's hands even after they were raised well above the ground. Similar behaviour in Northern Phalaropes with young has been recorded occasionally in North America.

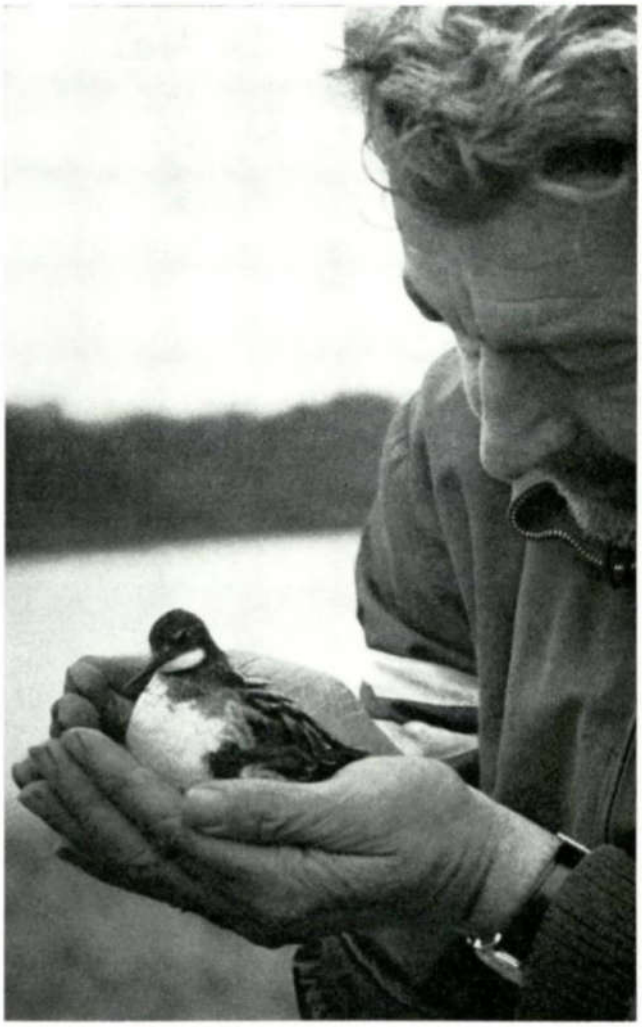
The fact that it is usually the *male* parent phalarope which is most anxious about the young leads up to some of the more striking peculiarities of these birds. Among phalaropes only the males incubate and hatch the eggs and only they are normally (though there are rare exceptions to this) concerned with looking after the young. The females in most cases leave the actual breeding areas a few days after they have laid the last of their four eggs.

The restriction of the breeding urge to the male bird has lately been explained partly by the experiments of Dr Pfeiffer of Montana State University and partly by our own work at the University of Alberta. Incubating birds in general develop a brood patch. This is an area of skin from which the feathers and down are shed and in which the surface blood vessels proliferate, and it is this area of skin which is applied to the eggs during incubation. In the phalaropes it is only the males which develop brood patches since only they incubate. It is known that in the usual type of birds in which the females incubate, brood patches can be induced to develop out of season by treatment with female sex hormone plus another hormone, prolactin, from the pituitary gland. However, in phalaropes Dr Pfeiffer found that only the combined treatment of male sex hormones with prolactin would induce the birds to develop the brood patches out of season, say in the autumn. Brood patch formation is very likely associated with the urge to incubate.

But there is more to the story of the phalaropes. The females of all three species are a bit larger and in the breeding plumage much more highly coloured than the male birds. Moreover they tend to take the initiative in courtship displays and, as I have consistently noticed in Wilson's Phalarope, female birds fight or at least threaten one another in the breeding season when one female happens to approach the male to which another is already paired. The male birds never fight each other but often feed peacefully side by side or stand within inches of one another sleeping or preening themselves. Yet male phalaropes, though they have accepted the responsibility of raising the family, are not passively receptive at all times. I have often seen one threatening or chasing off a female that has approached too closely in spite of the fact that



R. S. PALMER



W. HALLER

Far left: The more dull coloured bird at the left is the male in this pair of Wilson's Phalaropes.

Left: A typical breeding site of the Wilson's Phalarope, a slough in parkland farming country near Edmonton, Alberta.

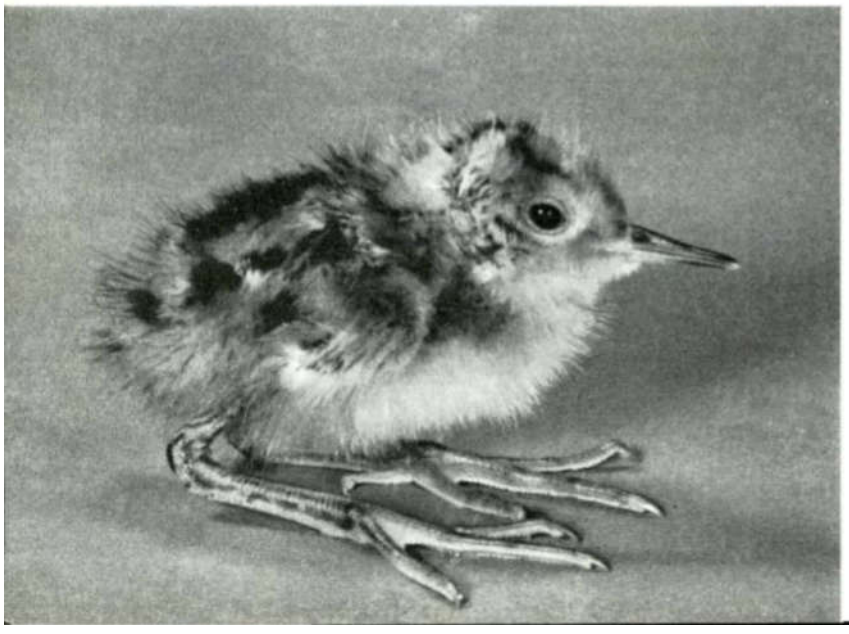
Above: A male Northern Phalarope brooding its young in the hands of an observer in Scandinavia.

The downy young are Northern Phalaropes near Churchill, Manitoba. The picture below them is of a male Wilson's Phalarope showing the brood patch of bare skin revealed when the feathers are parted.

the female is larger as well as more impressively coloured.

In winter all phalaropes have a dull plumage which is the same in the two sexes but they change into a brighter plumage as the breeding season approaches. This suggests that sex hormones might be related to the development of the breeding plumage. Since female phalaropes are also more aggressive than males and aggressiveness is well known to be related to male sex hormones I have long held the view that female phalaropes probably make more male sex hormone than their partners and that in response to this they develop a more striking breeding plumage than do the males. This is almost certainly the case, for experiments made by Dr Pfeiffer and one of his graduate students have shown that when phalaropes are partly plucked in the autumn (when they are already in their dull plumage) the new feathers that grow in the plucked areas are highly coloured as in breeding females if the birds are treated with *male* but not when treated with female sex hormones. This indicates that early in the spring when phalaropes moult from the dull winter plumage the females which then develop higher colouring, are making more male sex hormone than are the males. Persistence of this partial "masculinization" of the females into the breeding season would also account for their generally forward and aggressive ways. Our own work at Edmonton has been concerned with measuring the amounts of male and female sex hormones in the sex glands of phalaropes and comparing our findings with those obtained from other birds like ducks and domestic fowl in which the male is unquestionably the dominant and more aggressive sex. We were in fact able to show that female phalaropes have quite a lot of male hormone in comparison with the amount of female sex hormone in their glands. More normal female birds like ducks and chickens have, as one might expect, a great excess of female compared to male sex hormone in their sex glands. Production of some of the hormone of the opposite sex is quite normal in some mammals, including man, though in general female birds seem to go in for more male sex hormone formation than do female mammals. Recent biochemical studies have also shown that female sex hormones are in fact normally formed from male sex hormones within the sex glands. Our measurements and the experimental work therefore seem to explain why female phalaropes are more brightly coloured and more aggressive than males. Can they also explain why only the male birds form a brood patch? For this, male sex hormone and prolactin are required. Since female phalaropes are not low but rather high in male sex hormone production it is not obvious why females should not also form brood patches. But some of our other experiments answered this question too. We found evidence that female phalaropes produced little or no prolactin.

Although these results seem to explain most of the unusual features of phalaropes, some past observers have added another complication by suggesting that Wilson's Phalaropes are polyandrous. This idea seems to be based entirely on the fact that when the males are incubating one can often find only one female in an area from which two males can be flushed from eggs. This, I am sure is merely due to the fact that some of the females have already left the areas in question and does not prove that the few still around were in fact mated to all the incubating males. Also early in the season, before egg laying, these birds associate in pairs but never in my observations in triplets. So, strange as phalaropes are, they do not in fact live polyandrously but form ordinary fairly orderly pairs for at least a few weeks of each year. •



Downy young Wilson's Phalarope and, above, nest and eggs of a Wilson's Phalarope. The grass had to be pushed aside before the nest could be seen.

NORTHERN BOOKS

THE ROAD TO CONFEDERATION. The Emergence of Canada: 1863-1867

By Donald Creighton. Macmillan of Canada, Toronto, 1964. xii, 490 pages. $7.50

Reviewed by C. P. Stacey

The Centennial of Confederation is going to produce a flood of books. Here is one of the first. And, without waiting to see the others, one may this time take a liberty that would normally be indefensible and say, here is certainly one of the very best.

Donald Creighton is known to most moderately well educated Canadians as the skilful biographer of Sir John A. Macdonald. In that capacity he is exceptionally well qualified to write a definitive book on the political process that produced the Dominion of Canada in 1867. And that is what this volume is: a very detailed political narrative of four crucial years in the history of British North America. We seldom get so microscopic an examination of a limited period of our history; and there are few periods that would so well repay it. Although we are sometimes reminded that Professor Creighton has ploughed the field before—notably at the end, when he treats us to a sort of revised version of that justly famous purple patch, describing the first Dominion Day, which concludes *The Young Politician*—the Confederation story is much more fully told here than there. The author has made intelligent use of other people's work, as every sensible historian does and must do, but what is more to the point he has himself dug deeply and widely in the original sources—most notably and rewardingly, in the papers of British statesmen of the period.

The result does not greatly alter the general shape of the Confederation history as we already knew it; but it provides much new detail and a rounder picture than we have ever had before. This is not only the most detailed account we have, it is incomparably the best. There is still room for future examination of special aspects (Mr Creighton, for instance, does not really tell us much about French Canada's view of the events) but it seems inconceivable that anyone will take it upon himself to tell the broad story again—at any rate, in this generation.

There is more to it than that. Mr Creighton is not just a researcher. He is an artist, a "decorator and colourman in words". This book is a piece of vivid literature, always well written, often brilliant. The narrative is brightened with passages like this:

> By the end of the first week in July, all the Canadian ministers were back in Canada. Macdonald had returned with an Oxford D.C.L., Brown with chandeliers, plate and glassware for his new house, Galt with a sadly reduced opinion of the quality of English statesmanship, and Cartier with the delighted recollection of over two months of virtually uninterrupted dining out.

The combination of scholarship and artistry gives *The Road to Confederation* the same special quality that distinguished *John A. Macdonald*: the quality that will give it, one hopes, thousands of readers who would not normally pick up a work of "academic" history.

Being an artist, Mr Creighton has his artistic crotchets—a word Sir John A. found useful. He has strong likes and dislikes, particularly the latter. One person he dislikes is Arthur Hamilton Gordon, Lieutenant Governor of New Brunswick. We meet this unfortunate individual on page 1, where Mr Creighton is discovered beating him. We continue to meet him frequently, and Mr Creighton beats him regularly. Gordon is really not worth all the heavy weight of irony that the author expends upon him. Mr Creighton also dislikes Americans, and he gives us a fine passage of old-fashioned sentimentality about the Southern Confederacy and its "light-hearted and gallant" soldiers, "crushed to pieces under the slow, ponderous, lurching leviathan of Federal wealth and power"; this, he says, ended the hope of "that salutary balance of strength on the North American continent" which Southern independence would have established. Not everyone would share this confidence in the happy results of the disruption of the Union by a victory of the slaveholders' republic. As in *Macdonald*, Mr Creighton clearly tries hard to be fair to John A.'s great antagonist George Brown—and he leaves us in no doubt of Brown's status as a major maker of Confederation; but on some pages—particularly 301-2 and 393—there is a rather notable showing of teeth in George's direction.

What has this book to say to Canadians of the present generation? The author has not chosen to make its message explicit, but there is a message. It is well to be so eloquently reminded of what was accomplished in 1863-67 in the face of American hostility, British apathy and British American parochialism. Almost entirely the product of colonial statesmanship—both "English" and "French"—the union and the constitution of 1867 were and remain the greatest contribution to practical political science ever made by Canadians. In terms of the 1860s, as described by Mr Creighton here, it was a remarkable achievement. In terms of the century that has since passed, which lies outside the scope of this book, the political system then set up has on the whole served Canadians generally extremely well. Like other systems, it is doubtless susceptible of improvement, and it has already been considerably amended. But readers of *The Road to Confederation* are in a better position than other people to appreciate the absurdity of any suggestion that we should cast it aside and start again from scratch.

Professor Stacey, former Canadian Army historian, is in the department of history at the University of Toronto.

THE ART OF THE ESKIMO

By Shirley Glubok. 48 pages, illus. Harper & Row, New York; Longmans Canada, Toronto, 1964. $4.75.

Reviewed by Robert Williamson

In a world which appears to live increasingly in the present, this book has a valuable historical depth, something which is by no means less desirable because it is written for children. It comes as a timely and instructive reminder to the general public that Eskimo art has had infinitely greater variety of medium and technique than might well be assumed by those familiar only with the soapstone carvings which have become so widely known in recent years. Miss Glubok, an American trained in archaeology, has drawn the bulk of her material from non-Canadian museums which are largely ethnographic in interest.

Well designed, and of children's-book size, the forty-eight pages contain many photographs of Alaskan Eskimo masks, ivory carvings of animals, birds and people, dolls, incised pictures on ivory and bone, stone carvings, a couple of examples of graphic art, carvings in wood, and some decorated utilitarian artifacts. (One object included, rather regrettably, is a particularly ordinary ivory cribbage board, which as an anthropological example of cultural borrowing may be of interest, but is questionable as a specimen of Eskimo art.)

The lay-out of the book is uncluttered and arranged so as to give full play to the illustrations. The photography is clear and well executed, though somewhat bland, often losing some obvious opportunities to create mood, atmosphere or to heighten effect by the use of shadows, lighting and background.

The writing accompanying the illustrations, which takes the form more of delicate counterpoint than commentary—is for the most part sensitive and imaginative, sketching in some cultural information, some word-scenes of the Arctic, and some gentle human touches. The need for simplicity does however give rise to some misleading generalizations, and a few full-blown inaccuracies occur. The impression is given that certain cultural practices and art-forms which, unfortunately, have fallen into disuse, are still in full bloom. The style is suited mainly to five-to-nine-year-olds, but in the attempt perhaps to reach as wide an audience as possible, some unevenness of vocabulary creeps in occasionally.

It is perhaps understandable that, with her background, the author has weighted her material with the Alaskan past (for example there are no less than ten Alaskan masks, but only five modern Canadian soapstones and two prints) though the title creates expectations of broader perspectives. It can surely be said without chauvinism that contemporary Canadian Eskimo art has made a profound impact on an international scale, but the significance of this is not fully reflected in the book.

Nevertheless, this is an attractive effort, even for the interest of the serious student, presenting as it does some objects which have not been available in this way before. One is grateful for this all-too-rare opportunity to see such a varied collection of beautiful things from the Eskimo world. Miss Glubok and her designer Oscar Krauss, with Alfred Tamarin who took most of the photographs, should be commended for producing a pleasant, useful and interesting little book—particularly if by this they can be encouraged to embark now on a more contemporaneous sequel, entitled perhaps "The Art of the Eskimo *Today*".

Fluent Eskimo linguist, lecturer and writer on Eskimos and their art, Mr Williamson is one of the few white men who though not employed by an outside administration nor a trapper has chosen the Arctic (Rankin Inlet) as home for himself and his family.

CANADA Young Giant of the North

By Adelaide Leitch. Thomas Nelson & Sons, Toronto, 1964. 223 pages, illus., index. $3.25.

Reviewed by Shirlee A. Smith

Canada Young Giant of the North is a book written for young people to help them understand this Giant.

Miss Leitch is a good story teller. She explains easily and briefly the workings of the B.N.A. Act, the Senate, and the duties of the Governor-General—subjects not familiar to all Canadians.

Canada is a vast country and it is understandable that the author would be more at home in some parts than others. However, because of this the book tends to be patchy, or not well-balanced. In writing about Manitoba, p. 67, the sunflower crop is mentioned, but nothing is said about much more important industries; and Saskatchewan is not the land of the Chinook, p. 68. It was also a shock to read that "Only in French Canada did the Indian fare well in his contacts with the Europeans" p. 120. What happened to the very good relationship between the fur traders—particularly the Scots—and the Indians! In "Writers and Authors", p. 199, de la Roche, Montgomery, and Leacock are commented on. Surely there are authors writing today who should be included. Two that come to mind are Eric Nicol and Hugh MacLennan.

Miss Leitch is a professional photographer, and many of her excellent photographs illustrate the book.

In spite of the fact that this book could have been better edited, it is easy to read and contains many interesting facts about Canada and its people.

Mrs Smith is the Hudson's Bay Company librarian.

CREE LANGUAGE STRUCTURE and The Introduction to a Cree-English Dictionary

By Robert A. Logan. 1964. Available on order to the author, 801 East 2nd St., Duluth, Minnesota, $10.00. Logan's Cree-English Dictionary, 1150 manuscript pages, available on 35mm. microfilm at $10.00 or by xerographic reproduction in book form, two volumes, $60.00.

Reviewed by R. B. Horsefield

This interesting little book of 110 pages reproduced by the Velox process from the author's type- and manuscript, is a book for the dilettante rather than for those who wish to learn the language for commercial or social purposes.

Colonel Logan has interested himself in the language for more than half a century by study of the works of other writers, and by conversation and correspondence with native Crees of the Stanley area of Northern Saskatchewan.

He is a great admirer of Joseph Howse, the H B C factor who compiled the first grammar of the Cree language published in 1844, speaks of the grammars of Horden, Mackay and Hives "with unbounded admiration for their endeavours" but with considerable dissent from their views, and thinks very little of the scholastic pretensions of Bloomfield (an opinion shared by your reviewer).

He makes the important point that the form of the verb all other grammarians have called the "subjunctive" is actually in Cree used indicatively more often than the form commonly called the "indicative mood", but he overdoes his pet idea that the Indian thinks "It is walking I am," and not "I am walking." His insistence on this point leads him to some extraordinary constructions in his paradigms. For example:

Ki /pukisinw anawuoo oo /mistatim% oo'tshi, he says, means "You be falling, it of him, you are, his horse, from" (p. 66); or again: ay kuskayi'-tumw /ut ay sipwaytayit, "As it is sad about it of him thou art as departing is he" (p. 67), an extraordinary translation which yet manages to miss entirely the fact that it is not "he" but "the other person" who is departing.

There are some rather uninteresting letters from the late Chief Nehemiah Charles to the author, photographically reproduced (which unkindly leaves the chief no chance to correct his occasional misspellings), but we are not told what points of grammar

are supposed to be illustrated by them; and finally we are treated to four specimen pages of the author's Cree-English Dictionary, photographically reproduced from his untidy MS, pages that need a good deal of editing before being offered to the public. A sample entry, here lacking a few of the accents, may be offered as typical of the rest:

KWAYAT /USTUMU/ /W/AYOO, STM. 43. (preparing, placing it, to him, that doing, is she)
she lays it ready for him,
she provides for him.
/T/UM%. STM. IN. he provides for it.
/TSHIKAYOO. DM.GIT.

(To which the impatient reader is tempted to reply DM GIT indeed!)

Contrary to the opinions of Hojer, Bloomfield, et al., this author contends that Cree is the original language of the Algonkian group. We should like to have his supporting evidence adduced.

Archdeacon Horsefield had many years experience as a missionary to the Indians of northern Manitoba and Saskatchewan before taking up duties in British Columbia and is a fluent Cree linguist. In 1946 he inaugurated regular Cree language broadcasts that he gave twice a week.

TECHNIQUES FOR TEACHING CONSERVATION EDUCATION

By Robert E. Brown and G. W. Moser. Burgess Publishing Co., Minneapolis, 1964. 112 pp. Illus. $2.00. (U.S.)

Reviewed by R. W. Sutton

It should be emphasized that this little book is not intended to teach conservation. Rather, it is precisely what its title implies,—a guide to the *methods* of teaching conservation. Most school textbooks tend to deal with natural history in a rather compartmentalized form,—birds in this section, animals in that section, soils in one chapter, forests in another. Only recently have there been any really serious attempts to show the interrelationships of natural resources, the complete dependency of vegetation upon soils, or of wildlife upon habitat. This book goes far towards emphasizing the need for studying conservation not in terms of individual plant or animal communities, but as a subject to be treated as a complete entity on an environmental theme.

At its beginning the book outlines in considerable detail the principles of conservation, dealing separately and in detail with soils, water, forests and wildlife, but the basic theme recurs constantly. e.g., "Soil, water, wildlife and vegetation are interdependent." "Water is indispensable for plant and animal life." "All species of wildlife are directly or indirectly dependent on water and plant life." In each section the writers emphasize the ever-growing problem of land use, but point out that most natural resources are, in fact, renewable, and that by proper administration such resources can be managed so as to provide for the needs of man in perpetuity without the destruction of wildlife which has so often followed "progress".

By far the greater portion of the book deals with teaching methods, and involves constant reiteration of the need for field trips as an adjunct to classroom procedures. Various experiments are outlined in detail, one of the most practical being the establishment of quadrats,—field plots within which plant and animal populations may be studied in relation to one another. In brief, what we have is a book in which the science teacher is urged to place primary importance on ecology,—the study of the relationships of organisms to their surroundings. Certainly, at a time when man's needs threaten to outstrip, even devastate, our natural resources, any aids to the teaching of resource conservation are of increasing importance in the classroom.

Mr Sutton is Director of the Manitoba Museum and a frequent broadcaster on natural history subjects.

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FROM FROZEN NORTH TO FILTHY LUCRE

By Ronald Searle with commentaries by Jane Clapperton. Macmillan of Canada, Toronto, 1964. 112 pages, illus. $8.75.

Reviewed by Barbara Kilvert

Ronald Searle has come a long way from his early and justly famous creations—the gym-frocked horrors of St. Trinian's. Now, more the pictorial reporter than the cartoonist, Searle has over 25 books to his credit and his paintings have been exhibited in art galleries and museums across Europe and North America.

His latest offering finds him in top form as he makes his wickedly witty commentary on the folk—and folk lore—of North America, from the wasteland of the North to the overlush swamps of Florida.

In Jane Clapperton, free lance writer and an associate editor of "Holiday", Ronald Searle has found a first rate collaborator, intelligent, irreverent, very much tongue-in-cheek. However Miss Clapperton, in her Foreword, is quick to point out that this book is "an amused and affectionate report, a sort of fantasy on a theme by George Washington, drawn and written by two people who are as fond of America and Canada as anybody going and quite apt to get all choked up over maple leaves and star-spangled banners."

Nevertheless the book is rich with certain pomposity-deflating observations on the human race. In Alaska, Eskimo babies suck at ice cream cones; strong, silent Eskimo fathers—harpoon at hand—go to the barbershop for a trim of their fox-furred parka; reindeer wear dark glasses against the glittering glare of the Northern Lights.

Wall Street is inhabited by a multitude of strange creatures—bears and bulls and brokers, while the brilliant Canada section—a series of paintings

exhibited last year by the Hudson's Bay Company in Victoria, Vancouver and Calgary—includes the cowboy, the Mountie, the habitant, the H B C trader, and the miner but not all playing, shall we say, their traditional roles.

'Tribal America' shows Ronald Searle at his best as he impales, on the sharp nib of his pen, the hundred million Americans who are 'joiners' and by the time he's through with the members of the nation's philanthropic, ethnic, genealogical and frankly dotty organizations, there isn't a Shriner or an Elk left in hiding.

Florida is strong stuff; not recommended for the sentimentalist. Ivy grows around the bench-warming 'senior citizen', coloured servants patiently iron the spacious velvet lawns at Palm Beach, gargoyle tourists overrun the promenades and even the Technicolour landscapes, lit by improbable orange suns, seem slightly sinister.

Of course Ronald Searle never pretends to be a comfortable companion. He is too sharply perceptive, too sensitive to the tragicomic situations of these strange and disconcerting times. And yet, by bringing his distinguished intellect to play on the human scene, he enriches our understanding and understanding, after all, is the beginning of tolerance and sympathy.

Mrs Kilvert, formerly well known in journalism, is on the staff of the Hudson's Bay Company and edits "Bay News".

CANADA A TO Z

By Robert S. Kane. Doubleday & Co., New York; Doubleday Canada Ltd., Toronto, 1964. 348 pages, index. $5.95.

This is a travel book written primarily for people who are interested in visiting Canada. Mr Kane covers all ten Provinces and the two Territories. He is extremely observant, and has done his homework well. Every minute detail of the country and its people is covered—from the Lunenburg accent (it is distinctive)—to the fishing at Great Bear Lake in the Northwest Territories. On a broader scale you are told where to stay (prices are also given), what to see, where to shop, plus a historical sketch of the provinces. Nothing has been missed.

What a native thinks about his countrymen is rarely as vivid as that of a stranger. One reads, for instance, that "Canadians are exceeded by no people in the realm of politeness and courtesy", and "The Canadian is a pleasant, honest person to do business with", (pp. 23, 27). Victoria is described as "a smallish, charmless provincial capital with an agreeably mild year-round climate, . . ." (p. 97); and the Neptune Theatre in Halifax is "one of the best in North America", (p. 207).

The few errors are not worth mentioning but such a topical book dates very quickly and visitors to Winnipeg, for instance, will not find the "marvelous Victorian City Hall, dating back to 1886. . . ." The city now has a modern stone and glass structure.

It is hoped that this book will be read by the majority of Canadians. In these days of soul searching national unity it will help them to understand their country and the various peoples who live in it. —*S.A.S.*

SCARLET AND STETSON

By Vernon A. M. Kemp. Ryerson Press, Toronto, 1964. 280 pages. $5.00.

Deglamorizing Canada's fabulous Mounted Police is a task beyond even the most conscientious of senior officers. For which we are thankful. A force that is as reticent as the 'silent' navy lays itself open to misreport and imaginative statement, but the down-to-earth, straightforward story of the Force and its personnel only adds to its image. The wonder is that the Mounties exist at all—the magnitude of the reputation of the Force is in inverse ratio to its numbers. Some 300 men sent out as a constabulary to enforce law and order over a vast and largely unknown area—and not only that but to establish friendly relations with a suspicious native population—was a tall order. They were moreover expected to accept strict discipline, to forego normal living conditions and relaxations, to be self reliant, authoritative, brave, capable of judicial wisdom, and all for some 60 cents a day. Much was expected of them and to expect much of human beings is, usually, to receive much. Canada certainly received much from the stalwarts who in 1873 formed her North-West Mounted Police. The majority of them were from the old country—Canadians were too well aware of the conditions of service and the meagreness of the pay to be willing to enroll. The early members of the Force were individualists, ex-soldiers, misfits, remittance men, odd characters, but with little training and harsh conditions they performed their duty well.

This is the story that retired Assistant Commissioner Kemp tells, from the period 1900 to 1917, and he knows whereof he writes having worked his way up from the post of a very junior stenographer—the first such creature ever appointed.

It is well to hear the story from the inside. So much nonsense is written about the Mounted Police that the results verge on musical comedy. The factual story is no less enthralling and much better reading. Mr Kemp, too, performs a useful service in carrying the story forward from the time when the only official history leaves off in 1893. Early commanding officers are brought to life, in their strengths and their weaknesses, strange types breeze in and out (there was, as might be expected, a constant turn-over of personnel), life in barracks and on patrol is depicted with the many small details that intrigue.

The book does not set out to be a history, but it tells much about administration and work as well as personalities. One wishes for an index to find again passages that have informed and entertained.

Mr Kemp writes well and, bless him, he has a sense of humour. With his personal experience to draw on the result is what might be expected (but is not always achieved) an excellent book, replete with interest, drama, comedy, and wonder. *M.B.*

Reprinted

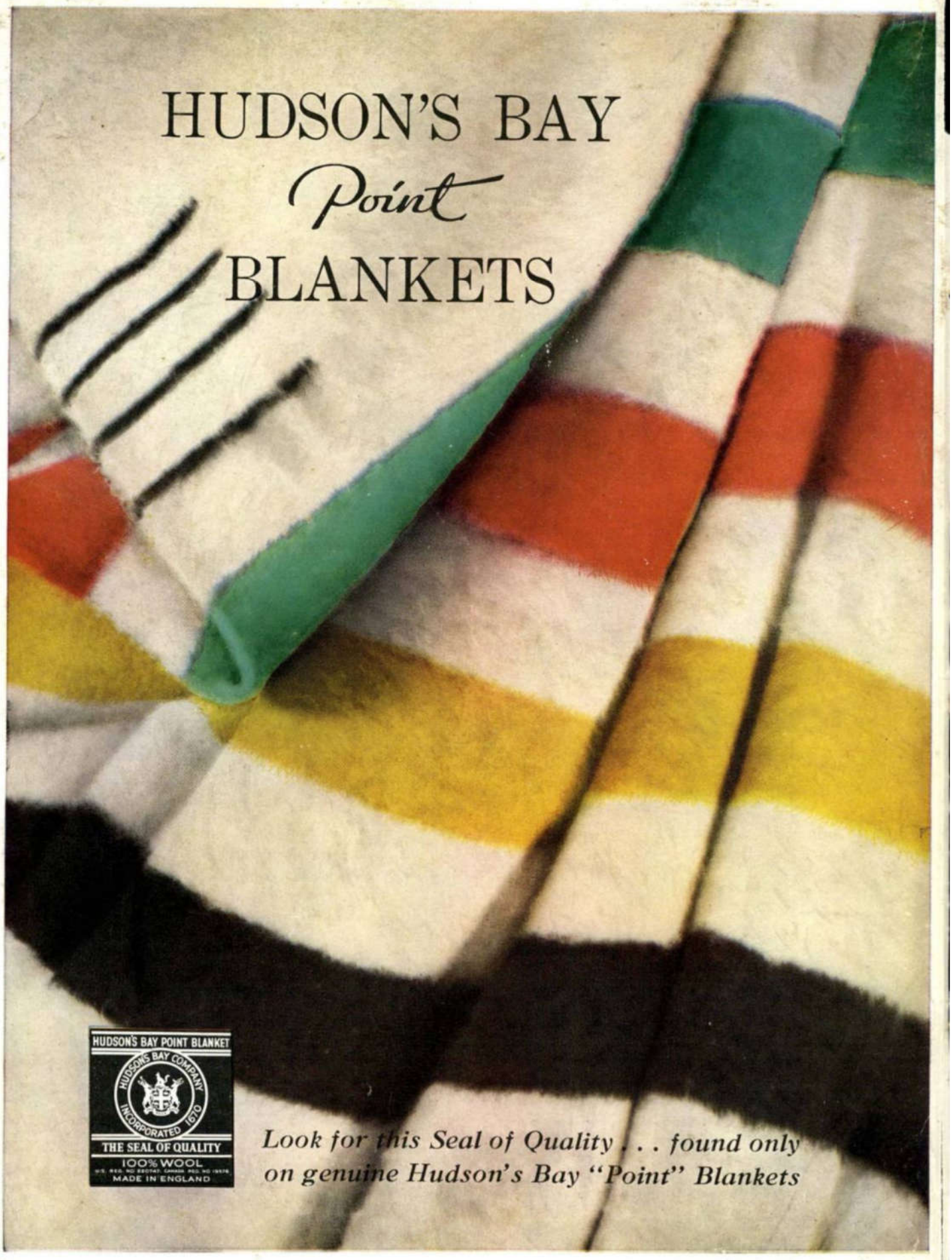
EXPEDITIONS TO THE CANADIAN ARCTIC

By P. D. Baird

This 16-page pamphlet lists sea and land expeditions from earliest times to 1918, naming leaders, vessels, objectives and results, and publications describing each of the expeditions.

Available for 35 cents from
The Beaver, Hudson's Bay House
Winnipeg 1, Manitoba

Surveys and Mapping Branch 1968, (Grise Fiord and Rankin Inlet added)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